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GAS JOURNAL

LIGHT • HEAT • POWER • BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

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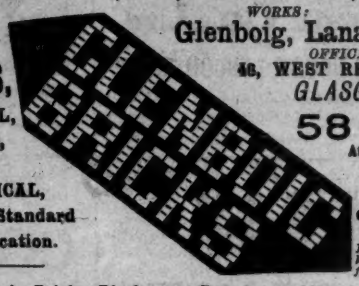

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VOL. CLXVIII., No. 3204.] WEDNESDAY, OCTOBER 8, 1924. [76TH YEAR.

EDITORIAL NOTES.

The National Advantage of the Gas Industry.

IF there was one impression stronger than any other which those present at the Annual Meeting and Conference of the "B.C.G.A." carried away with them from Liverpool last week, it was that the work of the gas industry is of incalculable national benefit. This aspect of the industry's activities is not grasped even by some of the most intelligent men in the realms of governmental, industrial, and ordinary citizen life until it is specifically, and point by point, brought to their attention. Notable as have been previous conferences of the Association, never within our memory of all meetings that have preceded the Liverpool one has the national aspect of the work of the industry been made more pronounced; and many prominent men of Lancashire have now an understanding of this important phase of our industry that they had not prior to the meeting last week. Happy are gas suppliers in a large territory who can secure in a centralized place the holding of an annual meeting of an Association which has such educative resources and influence. One result of the Liverpool conference is that new views have been opened up to men of position in a large area, and thus fresh opinions have been created. The Liverpool Gas Company are held in high esteem not only in the city, but in a large surrounding area; and their Chairman and President of the Association (Alderman H. Wade Deacon, C.B.E., J.P.) has rendered public service in manner which has placed him in the fore-rank of citizens of high reputation. Throughout the proceedings this esteem was testified; and despite the fact that gas supply in the city is the production of private enterprise and electricity that of municipal enterprise, there were not apparent any of those petty jealousies that are so often witnessed where the local authorities show —perhaps unconsciously—the communistic trait of strong antipathy to private enterprise in favour of their municipal trading. The Liverpool Gas Company have on the City Council business men with whom to deal—men who believe in every enterprise no matter the ownership realizing business on its own merits. This is the right spirit and attitude. It would be a national advantage if the same spirit were cultivated throughout the country. At Liverpool, the Association were received and entertained in the Municipal Buildings by Alderman and Mrs. Rutherford, deputizing for the Lord Mayor and Lady Mayoress (who were in France), and Alderman Rutherford also welcomed the visitors at their business meeting—these being graceful recognitions of the public importance of gas, without the faintest sign of trading rivalry. At the dinner, too, given by the Liverpool Gas Company, members and officials of the City Corporation and civic representatives of other neighbouring towns were among the guests; and there was here no trace of the antagonism which is so often found between local authorities and a public utility concern run by private enterprise, and which embitter relations. In such conditions one gets into a real atmosphere of public service; and that atmosphere no organization in the industry has done more to foster and promote than the "B.C.G.A."

It is such service that the gas industry is rendering to the nation, under laws which have become more co-ordinated through the Gas Regulation Act, and which impose conditional restrictions upon the participants in any accruing profit. The issues of that service are nationally of far greater value than the revenue of the industry and the profit which the suppliers of the necessary capital are allowed to take. As was seen by our comments on the Presidential Address last week, the national service note was given to the proceedings by Mr. Wade Deacon in his deliverance; and it is true the industry is doing a great part day by day, and in several ways, to advance the economy and efficiency of the nation. The point was noted by Alderman J. H. Lloyd, of Birmingham, when he said that the address showed that the gas industry was not out merely for commercial advantage to itself, but that it had a strong desire to benefit the public in every possible way. Happy emphasis was laid upon this when Alderman S. F. Phillips, of Salford, converted the word "serve" to "save" in a phrase from the address to the effect that it was the duty of gas undertakings to serve the nation. That is the point. Its service results in saving, and "saving" in many other ways than is comprised within the oft-quoted expression "economy and efficiency." There is health and life saving; and no one allows the gas industry to make any special charge for this service, nor does it attempt to do so. But it is of immeasurable national importance. We were recently given information by Sir George Newman, the Chief Medical Officer of the Ministry of Health, which is a vast encouragement to those who are working for a healthier, happier, and more prosperous population; and the gas industry can claim it has been doing that. Sir George stated in his annual report that the average death rate, which was 21·4 per 1000 in 1871-80, fell last year to 11·6 per 1000. In bringing about conditions contributing to this result, the gas industry is taking an important share. Anyone who heard the fascinating lecture by Dr. C. W. Saleeby on pure air and sunshine, and the effect they have in preventing disease and in curing it, must admit that those who are working to lessen the pollution of the atmosphere by industrial and domestic chimneys, which pollution obstructs the free penetration of the sun's rays, are doing a grand national service. The participation in this of the gas industry was also shown by Mr. W. M. Mason in a paper which presented the case for gas as an aid to health. The argument and compilation of facts for which Mr. Mason, as he explained, was the official mouthpiece, deserve very thorough study by those who are engaged in the work of promoting the use of gas; every appliance for whatever heating purpose which displaces raw coal being a contribution to a beneficent object. One of the most influential avenues for promoting, by example and through experience, the use of gas for heating purposes is the medical profession; and in this connection, the remarkable data supplied by Mr. H. H. Creasey as to the gas-fire patronage of the medical men in the district of the Gas Light and Coke Company are instructive, and testify to the efficiency of the campaign among them. The promotion of health and the saving of life are important national advantages; and so is the saving of valuable constituents of coal, of property from slow destruction, and of labour in the home, together with the promotion of the general economy and efficiency which results from the displacing of coal by gas. In industry and trade the same economical and efficient results are promoted, and on a larger scale, as was illustrated by the vast applications of gas at the biscuit works of Messrs. W. & R. Jacob & Co., of Aintree, as described in the paper by Mr. R. E. Gibson, the Engineer of the Liver-

pool Gas Company, and as was demonstrated by a visit of the members of the Association to the famous factory.

There cannot be any denial of the national advantage of the work of the gas industry, although there is as yet but scant recognition of it; but the omens are that the recognition is growing. The more it grows, the greater will become the opportunities of the industry in promoting fresh ways of securing national advantage. For example, much has recently been heard of the co-ordination of our fuel supplies with the view to their more economical use, and thus secure a further advantage to the nation. The newly elected President of the Association, Mr. J. H. Ellis (the Chairman of the Plymouth and Stonehouse Gas Company), made reference to this at the dinner last week, when he spoke of the possibility of gas-works becoming the generators of electricity for supply in bulk to the distributors. Such things, however, cannot come to pass without hard work, and using all the vehicles of propaganda that are available. That is work the Association have in hand. The industry has received more publicity this year than in any previous one, simply because, as Mr. F. W. Goodenough pointed out, three times more money than the normal has been spent upon it. Through it this year we have won much ground, and not only owing to display and mass advertising, but because truth is the first item in the Association's code of advertising principles. When experience confirms the advertised statements, a good reputation is built up; when experience does not confirm them, that experience does infinitely more harm than the advertisement does good to the advertiser. During the past year, the Association, its Executive Chairman and Committee, and the officers have put in more work than ever for the industry; and the effects are good—one of them being the growth of recognition that this enormous commercial enterprise in gas can and does promote national advantage through its service. That service is not the mere exchange of a commodity for so much money. There exists in it intrinsic value to the nation of a very far-reaching order.

At the same time we have to meet hostile circumstances. We have in power a Government obsessed with the importance of electricity for light, heat, and power—a Government who are building castles in the air in this connection, and are content with what they are doing, simply because their knowledge does not enable them first to dig before constructing. One line of work for the gas industry should be, not to decry their competitor, but truthfully to create public opinion upon this matter by a plain statement of comparative facts. This, we have reason to believe, is a matter receiving immediate and careful attention. Anyway, looking at the developments within the industry, the progress it is making, the competitive circumstances of the times, the favouring influence of the Government for electricity, there is no doubt, as Mr. D. Milne Watson said in a message to last week's conference, the best way for us to meet the situation of the times is to hold together and support one another in a national organization, of which the "B.C.G.A." is a prominent and successful example.

Government to Subsidize Electrical Equipment in Houses.

It is not known how widespread the offer has been made to which we have to call attention; but it is pretty certain that Swansea has not alone been favoured in the manner to be described. It may, with good assurance, be assumed that the offer has been made extensively to other municipal authorities supplying electricity; and if to them, why not to all gas suppliers, though in our opinion the Government ought not to be permitted to speculate with the taxpayers' money in this fashion? At all events, there ought not to be preferential consideration for one industry over another. It has been seen, from several references in the "Journal," that the Government are contemplating amplifying considerably the powers of the Electricity Commissioners, and meeting the costs of carrying out large schemes of electricity transmission in conjunction with super-power stations; and they have been dreaming of electricity being conducted to the home of every working man for light, heat, cooking, and power, in order (so they say) to do away with the drudgery of everyday labour. The object is an excellent one, but the means proposed most uneconomical from the point of view of both the nation and the individual. However, the Government are still proceeding blindly and superficially. Clearly they have not the remotest notion of what their ambitions in this respect mean and involve.

The first step in this new development was disclosed at a meeting just recently of the Swansea Corporation Electricity Committee. Fundamentally, the Government desire to assist the unemployed during the coming winter. According to a report in the "South Wales Daily News," the proposals request the Corporation to spend money on the laying out of general electricity schemes where it is considered they will be justified within a period of ten years; the Government undertaking to pay the interest on the capital invested for ten years, or such less period if it becomes remunerative earlier. That is to say, up to a period of ten years, or less if the extension reaches a paying basis before, the Government will be responsible for the interest on the money laid out in response to this invitation. No wonder the Borough Electrical Engineer rubbed his hands with glee, and told his Committee that this opened out a very wide vista, and would enable them to develop the electricity undertaking to a very great extent. The Chairman (Colonel Sinclair) also intimated that it would allow the Committee to override their old policy of only laying mains where they were assured of their becoming remunerative; but this new project will enable them to get out to districts where they would otherwise not have ventured at present. In other words, the Government are instigating electricity committees to forsake a politic policy and gamble on a hoped-for future success. Somebody has got to pay for this, and that somebody is the taxpayer; and to what extent the taxpayer will be committed in this way is not known. Anyway, it is not just to the taxpayer or to public utility concerns—such as gas undertakings—in competition with the electricity industry.

The offer does not stay at the extension of mains. It is said that it includes the equipment of houses. The point was raised by Alderman James, who asked whether a scheme could be submitted for the actual wiring of houses and the installation of electric cooking and heating apparatus in every house. The reply of the Chairman was that such schemes are incorporated in the offer. It gives them a free hand. The Committee were jubilant; and the Engineer was instructed to prepare a report on a scheme, including the laying of mains, house wiring, and the fitting of apparatus. The closing date for the acceptance of the offer is some time this month. Naturally the proposals are regarded as significant; and it is thought they will have a marvellously beneficial effect upon the interests of electricity undertakings. So much does this strike the "South Wales Daily Post" that its reference to the proceedings of the Committee starts with the words: "Electricity and all its concomitant "benefits in every house in Swansea borough is now within "the bounds of reasonable possibility." If it were, we should be sorry for the occupants of those houses. There may be some connection between the Government offer and an advertisement which appears in the same local paper, and the purpose of which may be to give an indication of the costs of wiring in different circumstances. The advertisement is issued by the Corporation Electricity Department; and it asks for tenders for the wiring for electric lighting of thirty-three houses in Shelley Crescent and sixty-three flats in Byron Crescent.

This Government offer is an important matter. It is one against which the gas industry should protest through every available channel—particularly through those Labour members of Parliament who represent the workers employed in the gas industry. No doubt the National Gas Council will have something to say, and make a move, in view of the Government offer. It is one which should command the attention of all organizations concerned in national finance and interests and in the defence of the taxpayers. The gas industry has had to lay mains, equip houses on the prepayment system, and do it all without help on a commercial footing; and why should electricity be favoured in the financial manner suggested? The present scheme is a serious and a disquieting one. In the same issue of the "South Wales Daily Post" from which our information has been taken, we see a report of a political meeting headed "Danger of Labour in Office—The Undermining of our Institutions." There is something more than that in the present proposals. In them there is unsound finance; there is no security; there is encouragement to electrical speculation; and they are unjust to the chief competitor of the electrical industry, as well as to the taxpayers. Every business ought to stand on its own foundations, and not be subsidized by the Government.

The Gas Educated Director.

It was not supposed that "A Gas Engineer" would allow to pass without reply the criticisms of his suggestions as to the education of gas directors and his decisive views as to the exclusion from Boards of Directors of gas engineers who had held official positions. From his comment on the criticisms, it appears that our friend did not mean all that his former statements implied. He has no grievance against the official gas engineer who becomes a director, and he has no objection to his becoming a director, providing it is not of the company of which he has been the successful engineer and manager. His exact disclaimer of objection in other circumstances is made thus: "When reading Mr. Brearley's "article, it must be borne in mind that the original statement "did not suggest that gas engineers should be excluded from "sitting on Boards of Directors of gas companies, but only "that they should not be elected, upon retirement from their "official position, to the Board of the Company in whose "service they are." There we must dissent entirely from our friend. A gas official—especially a gas engineer and manager—who is retiring from official service, providing always that he has served the company faithfully and well, and has gained the confidence and respect of those about him, could not be of greater value to any Board than that under which he had served, inasmuch as to the administrative work he would bring incomparable knowledge of the affairs of the concern. The prohibition of "A Gas Engineer" is based upon a single point of view. He wishes to protect the successor of the elevated engineer. He thinks the latter would look with jaundiced eyes on any improvements upon his own work that a younger engineer who succeeded him in official capacity might suggest. As we pointed out in our criticism of Sept. 24, an engineer who would take up such an attitude would not deserve the title of "engineer." A successful engineer is a man who has throughout his professional life been making improvements upon the work that he has formerly done; and is it to be supposed that upon his retirement he would say that the last word in any process or method he had adopted had been said, and that a successor would be able to go no farther? The whole teachings of his life would rebel against such a posture. It would suggest that progress had ended.

We do not care to discuss persons, save in a good cause; and this is such. "A Gas Engineer" makes special reference to Mr. D. Milne Watson and Dr. Carpenter—former gas officials who have risen to the highest pinnacles in the industry. They will not object to the allusion and the discussion, because this is a subject in which they are both much interested, and they are both cordially in favour of chief officials winning their way to the Board of Directors. Our contributor maintains that Mr. Milne Watson and Dr. Carpenter were not elected to their present positions because owing to long service they wished to be relieved of the responsibilities of office, and it was felt it would be a gracious compliment to elect them as Directors, but because those responsible on the Boards thought that, by raising them to their present positions, they would utilize their abilities to the greatest advantage of the respective companies and the industry generally. That argument cannot be confined to those two administrative chiefs. If it applies to them, why not to other men? And why should not other directors think the same? They do so think; otherwise there would be no invitation to retiring officials in other cases to come up higher. Now if "A Gas Engineer" will make the inquiry of Dr. Carpenter, he will tell him that he is a firm believer in officials aspiring to a seat at the Board, and that it is a very proper and fit reward for eminent official service. In fact, he has been the means of ensuring that a proportion of the members of the South Metropolitan Gas Company's Board shall be men trained in gas interests, and preferably home trained. Then recently Mr. T. Goulden was elected to a seat at the Board of the Gas Light and Coke Company, on his retirement from the office of Chief Engineer. Was he so appointed because the Governor of the Company is not favourable to officials being on Boards? Just the contrary. The Governor's voice was the one, we have not the slightest doubt, which was most pronounced in favour of this course being taken. And Mr. T. Hardie, the present Chief Engineer, does not appear to be at all unhappy with his predecessor on the Board. Mr. Milne Watson and Dr. Carpenter, our contributor suggests, were raised to their present positions because of their proved ability, which it was desired should be given full play. In the exercise of that ability, they take a diametrically opposite view to that held by "A Gas Engineer." Another prominent example of the same kind of thing is the presence of Mr. H. E. Jones and Mr. H. D. Ellis on the Board of the Commercial Gas Company; Mr. A. E. Broadberry on that of the Tottenham Company; and Mr. B. R. Green on that of the Wandsworth, Wimbledon, and Epsom District Gas Company.

Examine the question how we will, we cannot agree with our contributor's view on this point, which view, to say the least, is very shortsighted, and the reason for it weak. In the administration of gas undertakings, the best possible factors are wanted, and the foremost is the trained gas engineer and manager.

A Low Offer.

If the Poplar Borough Council have a vacancy for a road sweeper, a man would do better for a couple of years by applying for the job than by taking the position of Assistant Gas Engineer offered by the Barnoldswick District Council, at the commencing salary of £175 per annum, and rising by three annual instalments of £25 to the magnificent sum of £250 a year. The first year, too, he could do better by taking a job as a Midland gas stoker at £3 12s. 6d. per week, for £175 divided by 52 is equal to £3 7s. 3¾d. per week, and then in the ¾d. more than justice is being done to the Council. These are days of technical education schemes and examinations of high order in the industry; days, too, when the responsibilities of the technical officers of a gas undertaking have much increased and are increasing. The Barnoldswick District Council have apparently an idea that by their offer of £175 a year they are doing their part to attract intelligent young men to the industry, and to encourage them to qualify for the standard of work expected of them in these times. It is, we are told by correspondents, our duty to enlighten the Council upon the subject; and we have much pleasure in complying with the request. They are in this respect doing nothing to encourage. It is offers of this kind and disappointments that cause intelligent young men to ask themselves: "Is it worth while?" Thank goodness all gas administrators do not assess technically trained young men at the value put upon them by the Barnoldswick Council, or the gas industry would soon be in bad case.

It is not that the Council are unaware they are asking for good quality for their money. In passing, we notice in the application form the inquiry as to whether the applicant is married or single. If married to an educated and refined young woman, she might with an income of £175 a year, or even £200—and the prospect of £250 after three or four years' struggling—wish that she had never left the home of her parents. The applicant is asked to describe his present official position, and state how long he has held it. Then particulars are asked as to educational training, with a list of certificates for gas and allied subjects. This shows that the Council appreciate that an assistant gas engineer should be technically trained. This is accentuated by subsequent questions as to whether the candidate can control and regulate the heating of vertical and horizontal retorts, and as to whether he has been accustomed to taking charge of the works. He is asked to give his experience with every part of the plant of a fully equipped gas-works. It is seen, too, that he must be a chemist; for he is to state whether he has had experience of the analysis of coal, coke, gas, tar, and liquor, and of the testing of gas for heating and lighting. That is not all. He must be a works designer and a draughtsman. The twenty-fifth question is: "Can you "prepare plans, and also make the necessary detail drawings, along with the estimates, for gas-works plant or "buildings, also sketches of mains and services?" Not being satisfied with this mass of qualification for £175 a year, with £25 a year rise the succeeding three years, the Council are desirous of knowing whether the applicant has had any office experience, and is able to deal with correspondence. And in the absence of the Engineer, would the candidate be capable of taking full responsibility? As we read this investigation of qualifications, we are struck by the complete understanding of the attainments necessary in a competent and efficient assistant engineer and manager, and the utter lack of appreciation as to the compensation deserved for the services of one so competent and efficient. Those who like to study administrative psychology, have an interesting instance from Barnoldswick—an overflowing knowledge of requirement, and yet reluctance to pay the

value of it! We hoped the days of this sort of thing had passed, or were rapidly passing. Barnoldswick disappoints us.

Lighting Activity Over the Way.

Those gas administrators who are hesitating over the adoption of a policy of inspection, adjustment, and maintenance of consumers' lighting and other appliances, would do well to pay a little more heed to the renewed activity by the electrical industry in the field of lighting. They know that gas lighting left to the attentions of most consumers constitutes the weakest point in gas business, and so is the most easily pregnable. They are also equally well aware that gas lighting can by periodical skilled attention be maintained in an unassailable condition in respect of economy, light quality, and general utility. They also know that the lighting branch of the business is the one that—unfortunately for the gas industry—is most neglected, simply because they will not enter into systematic inspection and maintenance (as other undertakings have profitably done) by men who understand this work, and make the charge part of the costs of supply. We in the gas industry have not yet got into the habit of thinking in terms of service—that it is service we are supplying, and not so many therms or (in the case of those who are not up to date) cubic feet. The sooner views broaden, the better. With each new winter season, the electricity supply industry makes a fresh effort in the direction of lighting. It is the most profitable part of the electricity business; and they feel the want of more of it. As will be seen by our "Electricity Supply Memoranda" this week, the question is being asked in the electricity industry: "Is our progress in "lighting as rapid as it should be?" There is general agreement among our competitors that the answer should be in the negative. The gas industry ought to show them more effectively than it is doing now that there are very good reasons why progress for them cannot be at a faster rate. If the "Memoranda" is read this week, it will be seen that it is not only the electricity undertakings that are getting busy again over lighting, but the electric lamp manufacturers. The work that they do does not come so prominently before the local gas distributors. They work, we will not say by stealth, but through the Post Office, and so what they are doing is not so obvious to the very people who ought to know what is going on. There is one electric lamp manufacturing firm who mail a booklet on "Better Home Lighting" to something like a million householders in the British Isles; and they claim that this is probably the most comprehensive mailing scheme that has ever been carried out in this country in connection with lighting. We are disposed to agree with them. But the booklet and the mailing scheme, it will be observed, are only items in this season's electrical propaganda. The gas industry's most potent defence to the operations of the electricity industry to secure new lighting territory will be found in burner inspection, adjustment, and maintenance by skilled men.

Gas Directors and Local Authority Contracts.

The Chertsey District Council appear to have a brusque way of doing things. They find it impossible to wait until the appeal is heard in the case of *Lapish v. Braithwaite* before taking definite action against one of their members. This is Mr. G. R. Wells, a Director of the Chertsey Gas Company, who have contracts running with the Council for public lighting and the supply of other products. The dismissal of Mr. Wells from public service was made on a recommendation of the Finance Committee that the office of councillor held by him be declared vacant, on the ground that he is a Director of the Gas Company. The recommendation was carried, despite the fact that the Clerk had reported that the London Municipal Society and the National Union of Ratepayers' Association had written stating that they had taken Counsel's opinion, and, as a result, expressed the definite view that Mr. Wells was not disqualified. There is unquestionably a wide divergence of views on the subject of councillors who are directors of companies statutorily controlled; so much so that the London Municipal Society suggested that the only way positively to settle the point as to gas directors was to have a test case. It seems that the reason the voting went in favour of the Committee's recommendation was that the members of the Council have a feeling that Chertsey should not be the place to bear the cost of a test case. But why Chertsey? The eyes of the world are not on that town. There are 1500 local authorities in the country, a large proportion of whom have gas directors in their composition, but not one of them has taken the drastic course adopted at Chertsey. They are mostly awaiting the result of the Braithwaite appeal. The Mayor of Worthing (Alderman J. G. Denton), who is a Director of the Gas Company, has intimated to his colleagues that he feels he can no longer act with safety in his corporate office, and that he proposes to absent himself from all meetings, and to take no further part in corporate affairs, pending the result of the Braithwaite appeal.

British Empire Exhibition.

Sir Lawrence Weaver, the Director of United Kingdom Exhibits at the British Empire Exhibition, is a ubiquitous gentleman. He was present last week at the annual meeting of the "B.C.G.A.," and was also at a meeting of the Thirty Club at the Trocadero. At the latter, he stated that he was not yet able to say whether the Exhibition would re-open next year, but an early announcement might be expected. Despite the tragic behaviour of the weather, the success of this year's undertaking he described as prodigious. Success in this instance does not mean the state of the Exhibition balance-sheet. "Success" must be adjudged by the benefit that the great display has been, and will be, to the Empire. It is difficult to assess this. The immediate business is not the sum of the benefit; but it is the only traceable thing upon which one can go. Sir Lawrence said that "the tangible business, in terms of goods sold and orders booked, had exceeded exhibitors' expectations." But far more important is the wide and convincing publicity given to Empire products—whether manufactures of the United Kingdom, or raw materials from the Dominions.

The Miners and Reparations Coal.

The representatives of the miners have had their interview with the Prime Minister on this subject; and like all Ministers on these occasions, he (so it is reported) was "sympathetic." The miners' representatives told him of the severe depression which exists in the mining industry, particularly in the districts producing for the export trade. They argued that payment by coal to the allied countries on the Continent interfered with British trade, and that the depression in the export coal trade is attributable to this cause. The Prime Minister's statement, besides being sympathetic, is said to have been guarded and diplomatic in character; and, in confidence, he told the miners' leaders of the general lines of the policy of the Government in Europe. Some of them were impressed, and now are not inclined to adopt an attitude which would increase the difficulties of the Government. There was also promise that the Trade and Commerce Committee should explore the position of the mining and other industries in relation to reparations. On that Committee the Miners' Federation are now to have representation. So much for the interview, which, of course, was a private one. Some of the miners' leaders seem to think the Dawes report has improved the position as to reparations coal. Mr. W. Straker, Secretary of the Northumberland miners, is one of these. He says if there were no reparations coal at all, we should still have German coal to meet in the foreign market. The only ill-effect will be if reparations lower the economic conditions, by increasing the working hours and reducing the wages of German mine workers, so that Germany can undersell British coal in competitive markets.

Lost Days.

Sir Arthur Balfour, Chairman of the Government Committee of Industry and Trade, states that in the first eight months of this year we lost nearly 8,000,000 man-days in industrial strikes and delays of one kind and another. That is one of the curious ways Labour has of preventing industry getting into a better condition and stride, and so creating more employment.

Cheap Capital.

This is difficult to get in these times; but not so much as a few years ago. The matter was referred to last week in the address of the President of the Society of Incorporated Accountants and Auditors (Mr. G. Stanhope Pitt). He alluded at some length to the National Debt repayment. This, he holds, should be

steady, gradual, and consistent in good times and bad; but it should not reduce the ability of the nation to maintain and advance its earnings by an increase of capital through savings. Heavy taxation, which involves a disproportionate appropriation of profits at the expense of capitalized profits, is detrimental to trade expansion. Cheap capital is a first essential to industry; and any legislation which adversely affects credit and the capital available for investment would have a disastrous effect on the country's position. Economy on the part of the Government, thrift in the habits of the individual, and enterprise in the activities of the capitalist should be encouraged; and in combination they should enable the nation to meet its liabilities and to maintain a higher standard of living.

PERSONAL.

Mr. Harry Edward Jones, M.Inst.C.E., has been appointed Chairman of the Primitiva Gas Company of Buenos Aires, Ltd., in place of the late Sir Albert Edward Bowen, Bart. Mr. James Mackenzie Macmorran, Secretary of the Company, has been appointed a Director, to fill the vacancy on the Board caused by the death of the late Chairman; and Mr. Robert Grant is the new Secretary.

In consequence of the large and continuous increase of business, the Directors of the Exeter Gas Light and Coke Company have decided to relieve Mr. W. N. Westlake, the present Engineer and General Manager and Secretary, of the purely secretarial duties, so as to enable him to devote the whole of his time to the more important work. Accordingly they have appointed as Secretary Mr. Ernest H. Dart, who has been in the service of the Company for many years as Chief Cashier.

Mr. D. D. Melvin has been appointed Assistant Engineer and Chemist to the Bothwell and Uddingston Gas Undertaking, which position was advertised in the "Journal" for Sept. 3.

Mr. Joseph Henry Race, grandson of Alderman J. Race, J.P., of Burnley, has been appointed Works Chemist to the Bishop Auckland Gas Company. His early education was obtained at Burnley Grammar School, and he is a graduate of Manchester University. He has been Assistant Chemist to the Liverpool Gas Company for three years.

Mr. Will Thorne, M.P., is 67 to-day. He was chiefly responsible for the formation of the Gas-Workers' and General Labourers' Union in 1899, and was elected as General Secretary, a position he continues to hold. In 1891 he was elected to the West Ham Borough Council, and was Mayor of the Borough for the year 1917-18. He was returned as M.P. for the Plaistow Division of West Ham in 1906, and still sits for the division.

Mr. Laurence Dougall has been appointed to represent Mr. James Dougall, Chiswick Meter Works, in the Eastern Counties. Mr. Leonard Truscott still retains the representation in the Southern District.

The partners—Messrs. Percy E. and Albert E. D. Beaumont—of Messrs. W. G. Beaumont and Son, Priory Works, Bow, E., desire to thank all friends for their kind sympathy and floral tributes in the sad bereavement they have sustained in the loss of their father, Mr. William George Beaumont.

Chadwick Lecture Programme.—For this autumn this includes a lecture by Prof. J. D. Cohen, Ph.D., B.Sc., F.R.S., on "Smoke," with a review of its causes, its effects on vegetation, fabrics, masonry, and metal work, and its influence on health and the death-rate.

Manchester District Institution of Gas Engineers.—At the quarterly meeting of the Institution in Runcorn on Friday, Oct. 24 (under the Presidency of Mr. G. S. Frith, J.P.), there will be a visit to the Marsh Works of the United Alkali Company, Ltd., to inspect the various plants for the production of sulphuric acid from spent oxide, pyrites, and brimstone, and to the new power station at West Bank, Widnes. On the invitation of the Chairman and Directors of the Runcorn Gas Company, luncheon will be provided at the County Secondary School, after which there will be an inspection of the gas-works and the new showrooms of the Company. A formal business meeting will follow the lunch.

Singeing Cloth by Gas.—It is pointed out in the "American Gas Journal" that from time almost immemorial cloth has been smoothed by singeing, either by running it through a flame and immersing it in water to put out sparks or by the use of hot plates and rollers. The application of gas heat to the process is said to have so greatly improved the singeing of cloth that the use of coal-fired machines is rapidly being given up. The gas flame is ready for operation the moment it is lighted, and gas-heated rollers can be raised to the required temperature of 1400° in twenty minutes, as against the four or five hours needed to heat similar rollers with a coal fire. Cloth can be run through the gas singeing machine at the rate of 200 ft. a minute, or more than two miles an hour, and automatic control of the heat produces more uniform results than were possible with the use of coal.

ELECTRICITY SUPPLY MEMORANDA.

There are signs that the electricity supply industry is not satisfied with its progress in lighting. "Meteor" of the "Electrical Times" recently asked the question, "Is our Progress What it Should Be?" And his reply is, "When all's said and done, progress is rather disappointing." He thinks that Chicago, New York, and Berlin have been rather tediously overquoted, but that if we go to our nearest neighbours on the Continent, we find a predominance of electricity for light and other purposes that is still far ahead of us here. Quoting again: "In Paris the wiring and fitting are often superficial and gimcrack; but electricity is everywhere—you cannot get away from it. It is just the same in most French and Belgian cities. But in similar towns in this country, the gas mantle is by no means hard to seek; the gas-stove is yet commoner; the full noon-tide of electricity has yet to come." Tears mixed with hope! But the hope has not any very solid foundation. Electricity in this country made the leaps and bounds it did in adoption for lighting largely through the neglect of the gas people. They realize this more than ever to-day; and they are altering their ways, and are doing more to give and to maintain satisfaction. It is a new policy not yet universally accepted, but still a policy that is spreading. The more it is applied, the stronger the barrier against the further progress of electric lighting. There are considerations which go to prove this. The zone which it was the easiest to conquer by electricity for lighting has been already mainly occupied. The other zones are not to be possessed so readily. The installation, maintenance, and running costs are all against this. Hence the adoption of such uncommercial practices as fixed prices per light per week. In the strongest of former strongholds of the fixed-light system, the undertakings have gone back upon it, and the tenants of the houses concerned have had to continue the use of the electrical service through ordinary or prepayment meters. Certain councils who have wired blocks of tenements have, after experience, declined to further their adventure in this direction. The simple reason has been that they found, as predecessors had done, that it did not pay; and that the ordinary or prepayment systems were the only safe means of doing business. On the other hand, costs with gas are lower from the start to the finish. Gas is required for cooking, and frequently for room and water heating and ironing; and from the same pipes, the agent for economical lighting can be drawn. It is obvious that this places a serious limit to the aspirations of the electrical people to develop further and rapidly their lighting load. There are not many people in the zones outside the occupied one who can afford to have a dual system where one suffices. It is an uphill difficulty with which electricity in this country has to contend, and more so as compared with near continental countries, because here gas is already so much more generally employed for purposes other than lighting. Our developments in those respects far exceed anything that has been done in France, Belgium, and other continental countries. In them there is now greater activity in those directions; for it is seen what an advantage the "other services" have been to British gas undertakings—one advantage being that in those quarters of social life in which the economical expenditure of money is a great object, there is no general intention of indulging in any unnecessary patronage of the electricity industry. That would be waste.

Seasonal Work.

A Prize Contest.

America is often quoted as a country where electric lighting has remarkable sway. But evidently there is still more area that the electrical people there desire to occupy for lighting. On Sept. 15 in the States a great "Home Lighting Prize Contest" began. It is described as the greatest electrical promotion campaign ever conceived or attempted. It seems that the national electrical manufacturers have put up $500,000 to finance this house lighting campaign; and the part the supply undertakings are expected to take in it is to give local leadership, co-operation, and support to organize local contests. It is believed that results are to be had; and they are "jolly well going to get them." We have not the details of the contest; but it appears that it, accompanied by valuable prizes, is designed to excite the interest of "millions of children throughout the country, and thousands right in your own town." Energy and new ideas are put into campaigns in America. This is a sample—a sample of a combination of manufacturers trying to get home to the public. An electrical contemporary wants to know what is being done to equal it in this country.

An Autumn Campaign Here.

The General Electric Company, Ltd., have sent the writer of "Memoranda" information as to their autumn "Osram" publicity campaign. As usual, they are doing the thing well. The August copy of the "Osram Bulletin" gives the details. They are out to sell better light and more of it. This is only one of a series of such campaigns by the Company. The means brought to bear in this propaganda work are many—posters, Press advertisements, leaflets, folders, illuminated signs, window dressing equipment, and so forth. Window displays, the Company believe, afford the best possible method of reaching the bulk of the public. So believing, they are doing their utmost to

encourage retailers to make use of this valuable form of publicity, by supplying, free of charge, the dressing outfit, supplemented by such material as show cards, cut-outs, streamers, &c. Attention is called to the new Osram poster design from the brush of Septimus Scott, which links up with last year's "Osram Baby" design. This is also reproduced on all the Company's standard price lists. The posters, it is stated, will appear on the hoardings at the "psychological moment." Press advertising plays a conspicuous part in the Osram campaign; and particular concentration is being made this year in the Trade Press. A booklet entitled "Better Home Lighting" is being mailed to nearly one million householders throughout the country. This is probably the most thorough mailing scheme ever carried out here to educate the public in the matter of lighting. Another feature in the campaign is a lighting chart on which are displayed suggestions and illustrations of suitable fittings for each type of room, with the sizes, prices, and costs of use per unit hour of the appropriate lamps. This chart, it is considered, will be a boon to the retailer in assisting customers to choose fittings, and in answering familiar questions as to how much lamps will cost to run. There is exemplary thoroughness in all this.

Glare and Correcting Devices.

One of the leaflets points out that, however beautifully a house may be furnished and decorated, without good lighting it may fail to become a real home. The cost of doing this, it is held, is very low, owing to the modern gas-filled lamp, which is "almost universally used for domestic and all other lighting, and is the most economical source of lighting ever invented." That is what is stated; and naturally we do not agree. Economy depends upon various circumstances, one of which is the cost of the lighting agent, which some electricity suppliers are keeping at a high figure in order to enable energy to be supplied at a much lower cost per KW.-H. for cooking and heating. Another reason why the electric light is not an economical one is hidden away beneath a claim which purports that the gasfilled lamp promotes economy. This is what is said: "It is economical because it is intensely brilliant. Because of the high intrinsic brilliancy of its filament, the gasfilled lamp should only be used with diffusing fittings specially designed for it." There in two sentences is the claim and the discount to economy. Those correcting fittings cost money initially and for replacements; and their use causes the consumption of current to increase per useful unit of illumination. It is suggested that where the lamp is likely to be visible, the white Osram lamp should be used. This is an ordinary gasfilled lamp sprayed with a special white coating "which makes the whole bulb glow with a soft, even, yet brilliant light, and with an entire absence of glare." The use of such bulbs must reduce appreciably the so-called economy secured from the naked high-temperature filaments per unit of electrical energy consumed. In the booklet on "Better Home Lighting," the Company make special warning regarding glare and the need for treatment, and again very rightly. But the cost of the correction is not noted. One of the latest innovations is the Osram colour-sprayed lamp, which has a coating similar to the white Osram lamp, but in the following standard colours: Red, orange, yellow, green, blue, and flame tint. We should not think there will be a large field for such lamps, except where effect rather than utility is sought. But it is thought they may be useful in the home to enhance schemes of furnishing and decoration; and they may also be found appropriate in theatres, cinemas, hotels, restaurants, &c. Our chief interest, however, is the claim for economy when there has to be correction for high intrinsic brilliancy. We do not see that the makers say anything regarding the question of efficiency after the correction is applied. Generally it is the electrical way to quote efficiency with the naked bulbs, which is not cricket.

Heating Season Preparations.

The wretched "summer" which, in respect of climatic conditions, is about the worst in any man's memory is being followed by an autumn which, with a mixture of heavy rains and cold winds, seems bent on showing that it intends to keep up the year's bad record. It is healthy weather for the gas industry, as people have begun to make early use of their gas-fires, which do so much nowadays in adding to the year's aggregate gas business. According to the "Electrical Trader"—the supplement to the "Electrical Industries"—the coming winter promises to be a very busy one for the electric heater manufacturers. We guarantee it will not be so busy for them as for the gas-fire makers, who have been actively preparing for the heating season for months past. But we see that the electric fire manufacturers are "all looking-up records of last year's sales of each line, and trying to forecast the demand for the coming season, developing new lines, and preparing attractive literature." This strikes us as being a bit late in the day. We are also told that in the "new" fire lists will be found in nearly every case last season's favourites, and a number of new designs. Also that the imitation coal-fire effect is aimed at in many of this year's patterns, and the use of a coloured lamp to add to the "cheerful glow" effect seems more in evidence. And this is called electric heating! It is further said that the bowl fire promises to remain popular, despite the fact that at several meetings its use has been questioned. The reflector type of fire has likewise been largely improved and extended this year. The "Adaptable" fire is another type that is to be pushed. It is intended for insertion in grates the bars of which can be removed. Imitation is still the sincerest form of flattery.

A Carnival at Wembley.

We really do not know what is coming over the men of the electricity industry. They claim so much for their commodity, but find its virtues—real or imaginary—require a lot of boosting. Much that is fantastic is adopted by them in the way of advertising—they call it propaganda. They have gone the length of holding what is described as a "Carnival" at the British Empire Exhibition. It does not appear to have attracted much attention, except in the Electrical Press. The "E.D.A."—the Electrical Dreamers' Association—seem to have had a lot to do with it, with Mr. Gillott as the organizer. There were gaily decorated vehicles, four Scotch pipers, an elephant; there were people dressed up to represent various electrical appliances; and after the procession there was dancing, in which were included various competitions in foxtrot dancing and balloon bursting. A little illustrated booklet was issued on the occasion; and one reporter says: "The booklet reflects the greatest credit on Mr. Beauchamp and his staff" Among the items is this: "Many interesting discomforts can be experienced here [in the Amusements Park] at prices to suit every purse. It has been well advertised that the lighting is by gas. This is only true on the main roads. The booths, the joy machines, and shows use electricity for light and power, with many motors and appliances by well known British makers." We are proud of that main road lighting. It has never yet failed; it has had much praise bestowed upon it by visitors; and it has never been condemned on the grounds of inadequacy, inconstancy, or monotony. As to the electric lighting of the stands and the electrically operated mechanism—well, there has been cause for excusable language which need not be repeated here. It certainly "reflects great credit on Mr. Beauchamp and his staff" that he has not reproduced samples of this in the booklet. It would not have looked nice. As to the quoted statement, of course at a Carnival one expects an amount of exaggeration.

COAL STORAGE AND SPONTANEOUS COMBUSTION.

At the September meeting, in Ithica, of the American Chemical Society, a discussion was arranged on "The Storage of Coal and Spontaneous Combustion." For the purpose of starting the discussion, a number of contributions were sent in, among them being one by Mr. S. W. Parr (the Chairman), who said that the conditions concerning the heating of coal in storage may be summarized as follows—

1.—A high percentage of textural moisture in a coal indicates a high capacity for oxygen absorption. Such coals immediately upon breaking out from the seam begin to lose moisture until an equilibrium with the moisture of the atmosphere is established, thus making way for the accession of oxygen.

2.—The larger the lumps of coal, the slower the interchange as between the free or inherent moisture and oxygen. Conversely, the more finely divided the material, the more rapid the interchange, and also the greater the superficial area of the coal particles.

3.—Any departure from normal temperature upward, unless checked or dissipated, is a vital factor, whether such increase of temperature arises from external sources or is the result of chemical action within the coal itself.

4.—Accessibility of air within the coal mass, thereby augmenting the supply of oxygen beyond the amount taken up by absorption, is essential for carrying the oxidation forward, thus bringing the temperature of the mass up to the point of ignition.

5.—Accessibility of air, involving ready circulation to an extent which will carry away the initial increments of heat as rapidly as formed, will prevent rise of temperature.

6.—Complete prevention of an additional oxygen supply beyond that absorbed by the coal before entering the storage pile will insure against any appreciable or dangerous rise of temperature.

7.—The oxidation of pyrite sulphur requires the presence of free moisture as well as oxygen. The augmenting of the heat in any manner greatly accelerates the oxidation processes for both the hydrocarbon and the sulphur components of the coal.

Transactions of the Institution of Chemical Engineers.—Vol. I. of the Transactions of the Institution of Chemical Engineers is an excellent compilation in all respects, in the value of the papers contained and in the good style of presentation. The volume commences with a short history of the formation of the Institution; and this is followed by the papers read during 1923. One of these, on "Industrial Oxygen," by T. Campbell Finlayson, B.Sc, was noticed at some length in the "Journal" for June 20, 1923, p. 737. Another paper of considerable interest is on "Corrosion," by M. B. Donald, M.Sc., A.R.C.Sc., in which he outlines our present knowledge of this phenomenon. A useful feature of the volume is a bibliography on chemical engineering subjects (1900-1923), contributed by E. A. Alliot, B.Sc.

BRITISH COMMERCIAL GAS ASSOCIATION.

ANNUAL MEETING AND CONFERENCE IN LIVERPOOL.

The Thirteenth Annual General Meeting and Conference of the British Commercial Gas Association was held in Liverpool on Monday, Tuesday, and Wednesday, Sept. 29 and 30, and Oct. 1, under the Presidency of Alderman H. Wade Deacon, C.B.E., J.P., Chairman of the Liverpool Gas Company. The attendance, as usual, was a large one, and the function was a conspicuous success from all points of view. A special feature was the new note introduced into the proceedings on the third day, when addresses were delivered by Sir Lawrence Weaver and the Right Rev. the Lord Bishop of Liverpool.

Monday, Sept. 29.

The proceedings commenced on the evening of Monday, Sept. 29, in the Council Chamber, when Dr. C. W. Saleeby delivered a lecture on "Light and Life," and there was afterwards a reception by the Deputy Lord Mayor (Alderman Rutherford) and Mrs. Rutherford, in the absence of the Lord Mayor and Lady Mayoress, who were in France in connection with the opening of the new hall at Givenchy, presented by the Liverpool Corporation. For this reason, Alderman Rutherford deputized for the Lord Mayor throughout.

LIGHT AND LIFE.

In the course of his lecture on this subject, which lasted for something under an hour, Dr. Saleeby related, in his now well-known and effective manner, his strong views on the subject of pure air and sunshine, and by the aid of a number of lantern slides demonstrated the advantages to health from the pursuit of the policy which he so persistently advocates. A great part of his lecture was devoted to the sunshine cure for ailments such as tuberculosis, bronchitis, rickets, and so on; and he urged an extension of the adoption of the methods now so much in use at Leysin in particular, and gradually being taken up also in this country. Much of the success of this work is due to the close attention being paid to it by Dr. Leonard Hill, who is so well known to our readers in other connections. Instance after instance was referred to, and illustrated by lantern slides, of children who had been converted into healthy and useful citizens after treatment on sunshine principles, notwithstanding that in some cases they had been given up by the doctors practising ordinary methods, or had been threatened with the amputation of limbs. It is claimed that 95 p.ct. of the cases dealt with are cured when treated in this way.

All this, of course, has a distinct bearing upon the problem of pure air. It is admitted that the amount of sunshine which we enjoy in this country does not compare with that of certain others where these methods are practised to a greater degree; but Dr. Saleeby holds that this is no reason why we should not adopt them here wherever possible. In his usual inimitable manner, he caustically commented upon the way in which we keep out the sunlight in our large industrial areas through the emission of smoke from chimneys, and for this reason urged the authorities to establish sunshine cure establishments in parts of the country not affected by the smoky atmosphere of large cities. He mentioned, incidentally, that the Sheffield Corporation have decided to remove all four of the hospitals in the town to a site well outside; and, he added, if this were done it would not matter very much whether the doctors went with the hospitals or not. The patients would be bound to recover by very reason of the fact that they would be able to enjoy the sunlight and the air. The best antiseptic outside the body is sunlight, and we cannot expose our bodies too much to it, with proper precautions.

The reason why we have so little sunlight in this country, however, is our barbaric use of coal. It has been proved that the death rate in any large industrial area always jumps up after a period of fog. The result of the abolition of coal smoke in New York was that between 1905 and 1919 pulmonary tuberculosis was reduced by one-half, and since 1919 there has been an even greater fall. Included among the slides shown were those illustrating Sheffield on a Sunday morning, when, of course, the bulk of the works are not in operation, and at various times on a working day, the final view being of the city practically hidden under a pall of smoke. Dr. Saleeby suggested that, although at present the only schools in the sun are those for children suffering from disease, it would be all to the good of the nation if similar schools were established for normal children. Such a suggestion at the moment would no doubt meet with objections, but the thing was bound to come.

To emphasize the evil effects of the emission of coal smoke, either from domestic or industrial chimneys, a micro-photograph was shown of the lung of a town dweller and the lung of a miner, and it was seen that the latter was much less affected by the atmosphere of uncombusted coal dust in which he worked than was the lung of the town dweller by the dirt and smoke inhaled in the town as the result of the combustion of coal. He characterized the conditions in places like Sheffield as monstrous and hopeless. Happily, the number of coal-burning domestic fires is diminishing, thanks to the increasing use of gas.

The Deputy Lord Mayor expressed the thanks of those present to Dr. Saleeby, after which the reception was held. The Constabulary Band played selections of music, and refreshments were served.

Tuesday, Sept. 30.

Members met in the Crane Hall, Hanover Street, when a welcome was extended by the Deputy Lord Mayor of Liverpool.

Welcome to Liverpool.

Alderman Rutherford (Deputy Lord Mayor) said he had received a telegram from the Lord Mayor of Liverpool from France in which he said: "Please convey our best wishes to visitors now assembled." Continuing, he said he was sure the hearts of all those present would go out with those in Liverpool to the Lord Mayor on the occasion that had taken him to France, where, beside the graves of many noble and brave men, he was opening a hall for recreative and instructive purposes in the little town of Givenchy. In past times there had been a little suspicion as to the commodity which the gas industry manufactured and distributed. After referring to the addition of water gas to ordinary town gas, the speaker went on to say that some of those present were representatives of municipalities, and some were experts and those who helped to control the purely commercial side of the business. With regard to the latter, he was glad to note as a humble shareholder in a good many gas undertakings—though unfortunately not for his own benefit—that as far as possible the managements took care to pay the maximum dividend allowable. While they were doing this he was pleased to note that they did not neglect the results of research and technical skill, and that these matters were brought to bear upon the whole problem, so that gas could be cheapened and made of more use to mankind. On the previous evening attention had been called to one phase in which the gas industry was doing good to the health of the community; and it was interesting to note that in all the newly erected cottage houses the necessity for the open coal fire was being largely done away with, and gas was being used for cooking and to some extent for heating. This helped to purify the air, so that the sunlight, which they had been incited on the previous evening to admire, was able to permeate thoroughly the air. Among those present were men who were known in many walks of life. For instance, their President gave a great deal of his time to public services—[Applause]—not only in connection with the City Council and its auxiliaries, but also in connection with many philanthropic institutions which were to a very large extent under his care and guidance, and in connection with which he had a large following of friends who took advantage of his advice and example. It was a revelation to find—as was evident from the programme of the conference—that business people could see their way to bind themselves together to serve the nation beneficially; and when one looked at the programme and saw the business that was to be transacted, including things of beauty in industry, and higher religious thought and the human relations in industry, upon which their honoured Bishop of Liverpool was going to speak, one could only realize that the members of the gas industry thought of something higher than the material interests which ostensibly bound them together, and that they were animated unitedly in uplift, helpfulness, and loving kindness towards those among whom their lot was cast.

The President, expressing the thanks of the Association for the welcome offered by the Deputy Lord Mayor, said that Alderman Rutherford had referred to the quantity of carbon monoxide in gas. As everyone present knew—except possibly those not connected with the gas industry—a report had recently been issued by Mr. Butterfield which finally disposed of the theory that carbon monoxide was a danger to the consumer of gas. He would recommend everybody to read that report, because it showed conclusively that the quantity of carbon monoxide in gas bore no relation to the number of deaths in any district. He was sure Alderman Rutherford would forgive him for putting this rather strongly, because in the past a good deal had been heard about it in Liverpool. At present, however, he was glad to think that the Corporation and the Gas Company were working in complete harmony in this and other respects. There was one other matter mentioned by the Deputy Lord Mayor which struck him—namely, that the gas companies in which the Deputy Lord Mayor was interested had always paid the maximum dividend. He (the President) apparently was a sinner, because they did not pay the maximum dividend in Liverpool. They paid what they considered to be a reasonable dividend, and were satisfied; and he was sure it would be a great relief to everybody in Liverpool to know that the Gas Company were not screwing the last penny out of consumers.

Further Good Wishes.

Mr. F. W. Goodenough (Chairman of the Executive Council) read the following telegram from the Secretary and Manager of the American Gas Association: "Best wishes from American Gas

Association for highly successful and profitable convention." Mr. Goodenough said he was sure it would be the wish of the meeting to send in reply a message of thanks, and an expression of equally good wishes for the success of the Convention which opens in Atlantic City on Oct. 13. [Loud Applause.]

Presidential Address.

The President then delivered his address, which will be found on p. 29 of last week's "Journal." While referring to the recent World Power Conference, he read the following from a letter he had received from Mr. Milne Watson: "I feel the best way to meet the new situation is for us to hold together and support one another in the great national organization of which the British Commercial Gas Association is such a prominent and successful example. Please give the conference on some suitable occasion my best wishes for its success."

Alderman J. H. Lloyd (Birmingham), proposing a vote of thanks to the President for his able, appropriate, and interesting address, said that it had been on a very high plane, which showed that the gas industry was not out merely for commercial advantage to itself, but that it had a strong desire to benefit the public in every possible way. This had been realized more and more during the years the "B.C.G.A." had been in existence. He was one of those who felt very grateful to the Association and those who controlled it, for the way in which it had brought before all the gas concerns of the country the need for co-operation and the rendering of the very best service to consumers. He was voicing the opinion of everyone present when he said they owed the President their sincere thanks for his address. He also wished to thank the Liverpool Gas Company for entertaining the Association in Liverpool. The undertaking was looked upon as one of the great provincial companies of Great Britain.

Alderman S. F. Phillips (Chairman of the Salford Gas Committee), seconding the proposal, said that the President had used the phrase that it was the privilege or the duty of gas undertakings to serve the nation. Personally, he would alter that phrase a little and say that it was the privilege of gas undertakings to save the nation. The people of the country still wanted educating to an appreciation of the true value of gas; they still needed converting to something like a reasonable and intelligent knowledge of what gas was and what it could do. It could be claimed that the "B.C.G.A." had done the organizing work of advertisement in a very capable manner, and had already brought about a very much better state of things both as regards company and municipal undertakings than existed previously. Moreover, the work so done had been of immense advantage to the country as a whole. Indeed, he often wondered how the industry got on when there were no such institutions and organizations.

Mr. S. Tagg (Engineer of the Preston Gas Company, and ex-President of the Institution of Gas Engineers), supporting the resolution, commented on the reference in the Address to the remarkable growth of the Association since the first meeting in Manchester. It was an extraordinary performance; and while it was possibly easy to enlist support in the early days of an Association such as this—a support which had borne fruit and had brought in 92 p.ct. of the undertakings in the country—it was not so easy, when that stage had been reached, to maintain the very high standard of efficiency attained. The Address would do much to inspire all those who so strongly believed in the "B.C.G.A.," and would stimulate the Executive to renewed efforts.

The vote of thanks was then put to the meeting, and carried with acclamation.

The President, acknowledging the vote of thanks, said it had given him great pleasure to read the address, and if it had given the audience any pleasure, he was well repaid for any little trouble he had gone to in preparing it.

Papers Read.

Two papers were then read, and discussed in private. The first of these, dealing with "Gas in Biscuit Making," by Mr. R. E. Gibson, Engineer of the Liverpool Gas Company, will be found on p. 31 of last week's "Journal." Mr. Gibson, before reading it, said that it was prepared with the idea of being presented at the public meeting of the conference. Had he known that it was going to be taken at the private meeting, the paper might have been in a different form. Mr. W. M. Mason, Manager of the Association, then submitted a contribution on "Gas as an Aid to Health," the main portions of which are reproduced below.

THE CASE FOR GAS AS AN AID TO HEALTH.

By W. M. Mason, Manager of the Association.

[Extracted.]

There are four main ways in which gas is an aid to health:

(1) As a source of light it has been demonstrated to be kindly to eyes (because its intrinsic brilliance is low) and of value as a cause of air circulation and sterilization.

(2) As a labour and dirt saving agent it conserves the health and energy of those who use heat, whether in home or in factory.

(3) As a smokeless fuel it very materially aids in the abatement of atmospheric pollution by coal smoke, and so tends to lower the death rate, diminish disease, increase the vitality, and raise the spirits of all town and city dwellers.

(4) As a means for heating rooms in which people live, work, and sleep, it can claim, in addition to the advantages to health mentioned in (2) and (3), that it has been proved to be the most dependable all-round hygienic agent.

The facts on which these claims are based are well known within the industry, and indeed they have been advertised to the public fairly well, though in no place sufficiently and in many places most inadequately. It is therefore unnecessary to dwell upon them here; but in view of the imperative importance of keeping them continuously before consumers and of constantly presenting the facts with the very latest evidence in a fresh form, four appendixes, designed for liberal distribution, either separately or together in all parts of the country, have been added to the paper. The first opens with an abstract of what was said at the outset about the responsibility of all in matters relating to the public health, and about the principle that advocates prevention as preferable to cure. The four appendixes then deal respectively with the four aspects of public health mentioned just now, in which gas has a useful part to play. It is hoped that these appendixes will be carefully read throughout the industry and that their value to the salesman as well as to the public will not be overlooked.

Doctors and Gas Fires.

"Doctors use and recommend gas fires."

"The highest consumption of gas per acre in any residential district is in that occupied by our leading physicians and surgeons."

What enormous power lies in these two statements for combating that prejudice against gas fires on the ground of health which still exists in the minds of many householders! Are these two statements 100 p.ct. true in any district in the British Isles? Are they 50 p.ct. true in the British Isles as a whole? To what extent are they true in *your* district? To what extent would the consumption of gas in your district increase if it were true that every medical man, every hospital, every nursing home, every clinic, used and recommended gas for all fuel purposes? These are questions which it is suggested deserve the closest attention, with action following upon the answers, by every gas undertaking from John o' Groats to Land's End.

There are other questions, too, closely bound up with these. What factors in the past created that prejudice against gas fires on grounds of their being detrimental to health—a prejudice at one time very general, and still existing to an extent not always realized in the industry? Do any of those factors still operate in our districts? Where they no longer exist, how have they been removed, and is it possible to remove them entirely everywhere?

In the opinion of the Executive, a searching, fearless investigation of the facts necessary to provide ourselves with absolutely candid and reliable answers to all these questions will be a highly remunerative form of activity throughout the industry. This is laid down not with the object of reproaching ourselves or anybody else with failure, in part or in whole, to recognize and act upon them earlier, but solely with the object of helping ourselves and everybody else to profit by those answers in the future. This is not—if indeed there ever is—a case for comparison between one undertaking and another for the purpose of feeding self-complacency, but emphatically one for comparison between present and possible attainment in each individual area. How nearly "100 p.ct." are *we?* How can we improve *our* percentage? These are the vital questions for each undertaking.

The fruitful question now is—why did prejudice against the gas fire exist, and why does it still exist, though in diminished and diminishing, but nevertheless considerable, degree? The answer, it is submitted, is that gas fires originally were badly constructed—mainly in principle, but partly in workmanship; atrociously designed; often imperfectly fixed, not seldom abominably so; and until recent years almost invariably neglected after installation. It speaks volumes for the inherent advantages of gas heating, and it promises enormous development in the sale of gas for heating in the future, that gas fires continued to increase in number (one can hardly say in popularity) even in the bad old days of—well not so many years ago—bad old days that still, indeed, are not altogether ended.

The progress of gas heating (especially in its earlier days, but also throughout its history to date) owes a great deal to the medical profession, for the more progressive minded among doctors early recognized—and gladly testified to—the hygienic advantages of gas. At the same time, those same guardians of the public health were rightly opposed to any means of heating that rendered impure the atmosphere of a room, or in any way detracted from its "freshness" or healthy condition.

The "Lancet" Committee.

The gas fires of thirty years ago, faulty in principle though many of them were, did work satisfactorily, if not very economically, when carefully fixed to a chimney with a good updraught in a room with considerable natural ventilation; and the advocacy of this means of heating by medical men who had had such favourable experience of it, combined with the opposition of others who either were prejudiced *a priori* or had had experience of gas fires badly fitted and used in unsuitable circumstances, led that famous independent journal the "Lancet" to set up a small scientific Analytical Sanitary Committee of inquiry in 1893, whose report formed the foundation-stone of modern progress both in gas heating and in smoke abatement, and remains of very real value to the industry to-day.

The following is the vital part of the conclusions of that Committee:

Most minute tests failed to find any deleterious products in the air of the room, in spite of the fact that no special precautions were taken to ensure ventilation.

Summing up the evidence gained from the entire results of the investigation, we are induced to express the opinion that gas can be used for warming purposes efficiently without prejudice to health and without the formation of fog-forming constituents, or air-contaminating products.

The words of highest importance to the gas industry in that pronouncement really were, it is suggested, these: "Gas *can be* used for warming purposes efficiently without prejudice to health." They implied that there were conditions to be fulfilled; that the gas must be used in the right way in order that gas warming should not be prejudicial to health. Those conditions were again in the minds of the Committee of Scientists (two physicians assisted by chemical experts) appointed by the Coal Smoke Abatement Society in 1906, from whose report, based on exhaustive tests, the following is an extract:

A properly constructed gas stove, with a flue sufficiently large to carry away the products of combustion, though for constant work more costly than a coal fire, is quite as satisfactory from a hygienic point of view, and does not in any way vitiate the air of the room; nor does it produce any abnormal drying effect as is popularly supposed.

It will carry off about 2000 to 4000 c.ft. of air per hour, and this is a valuable ventilating effect.

They are also of the opinion that *a properly constructed gas fire* has the advantage of a coal fire, from a hygienic point of view, owing to the more equable temperature and the absence of dust and smoke . . . The flue gases were analyzed in several cases during the present tests, but in no instance was carbon monoxide detected in the flue.

Note the repeated emphasis on the *properly constructed* gas fire. What was wrong with the type of gas fire chiefly in use when the "Lancet" Committee reported—and actually in use in some places to-day, if our information be correct? Shortly—and to ignore all question of appearance—the defect of the old time gas fire was that it relied to much too great an extent on convected instead of radiant heat for its warming efficiency.

WHAT TO AIM AT.

The obstacles that still exist to a greater or less extent in every district are:

Gas fires of obsolete construction and design which overheat the air of the room.

Gas fires of any design so fixed that the products of combustion are not completely and freely carried up the flue under any atmospheric conditions.

Gas fires of such design and/or so fixed as to be eyesores instead of harmonizing with their surroundings and making part of a suitable heating unit. (This last has no bearing on the hygienic aspect of the problem; but it is mentioned because of its great importance.)

All of these sum themselves up with: "Ignorance of the possibilities of gas heating at its best, and prejudice due to experience of it at its worst."

How have these obstacles been overcome, so far as they have been overcome, in regard to the medical profession? The question is confined to that particular class of consumer, not because all classes of consumer have not to be educated and convinced on this subject, but because the very finest foundation on which to build up public opinion favourable to gas heating, the very easiest way whereby to remove public prejudice against gas heating on hygienic grounds, is obviously to make every medical man, woman, and institution a satisfied user of gas fires and a scientifically convinced believer in them.

In 1912, Mr. H. H. Creasey gave the "B.C.G.A." at Manchester an interesting account of the campaign carried out in the most important medical districts in the world—that occupied by the leading specialists of the British Empire, the district very generally referred to as "the Harley Street area." At the request of the Executive, Mr. Creasey has brought the facts contained in his 1912 communication up to date—see below.

In effect, the policy that has led to the results outlined by Mr. Creasey (with which the organizers of the campaign are far from being finally satisfied, for 100 p.ct. is naturally their goal) consists in—

(1) Making available on attractive terms the very latest types and patterns of gas fires, and securing the displacement of every fire that does not answer to that description;

(2) Seeing that they are installed by skilled workmen in such a way that (*a*) there is always adequate pressure to the fire; (*b*) the fire burns silently; (*c*) there is always adequate but not excessive up-draught through a flue of adequate size to remove completely all products of combustion; and (*d*) the fire harmonizes completely with its surroundings and is as unobtrusive and as neat as it can possibly be;

(3) Arranging for periodical overhauling and adjustment of the fires by skilled workmen.

If 100 p.ct., or a high percentage, of the doctors in a district have by such means been made satisfied and convinced users of gas for heating, then a similar policy will soon produce parallel results in the district as a whole, with remarkable effect upon the output. To do this means educational work of an intensive order to pave the way for and back up the efforts of the staff in dealing with individuals. The Association, within the limits of their means, have for years been doing and continue to do much nationally in this direction, and can assist undertakings to do their share locally. Wembley has done a very great deal to awaken public interest to the facts. It is the belief of the Executive that a great opportunity now presents itself, and that if all give their close attention to this field of development, and take every possible step to educate the public on the possibilities of gas as an aid to health, there will be such an increase in the popularity of gas in the next few years as will far surpass all previous experiences of the industry.

THE CAMPAIGN AMONG THE DOCTORS.

Extracts from a Note by H. H. CREASEY.

At the request of the Executive Committee, I have pleasure in setting out some further details concerning "The Campaign among the Doctors" which was the subject of the paper I read at Manchester in 1912.

First, I would mention that the scheme set out in that paper was carried out by my Company continuously and with increasing success until March, 1917, when it was temporarily suspended owing to the exigencies of the war.

The rapid progress which we had made up to 1917 in converting doctors to the use of gas for heating is apparent by the fact that our percentage of medical men using gas fires had increased from 62—the figure reached in 1912—to no less than 75 in 1917. In the same period we made equally valuable progress as regards both hospitals, whose percentage increased from 58 to 77, and nursing homes, where the percentage rose from 43 to 72. As some proof of the necessity for continuous operations, however, I may mention that immediately we ceased our activities, our progress was not only checked, but we began to lose ground; and as a result the percentage of doctors using gas for heating had materially decreased by the autumn of 1921, when we recommenced our campaign.

The figures for the current year are not yet ascertainable, but during the year ended Dec. 31, 1923, we fitted no less than 1567 gas fires for doctors alone, compared with 1008 in 1912; this being the highest number we have ever fitted in any one year. Moreover, while the total number of doctors in our area of supply has also increased materially, we have nearly reached the same percentage as that obtained in 1917, and have materially exceeded that of 1912. The total number of doctors in our area of supply now using gas fires is no less than 3623, which is also the *highest* figure we have ever reached. It compares with 2484 in 1912, and 3287 in 1917.

The same pleasing features also apply to hospitals and nursing homes. We have now 363 nursing homes using gas fires, compared with 114 in 1912 and 224 in 1917, and 168 hospitals, compared with 84 in 1912 and 126 in 1917; the percentages of users being about the highest we have ever reached, at 72 and 76 respectively.

It is perhaps worthy of note that our campaign has also led to favourable business relations with other very important medical and health authorities, and those institutions with which doctors have very intimate contact—of which indeed they are frequently the ruling authorities.

At the premises of the Society of Medical Officers of Health gas is used for cooking, water-heating, heating, and, to an extent, lighting. There are nine fires installed, one of which is in the Council Chamber, which is also lighted by a large ventilating gas lamp. It is also a welcome fact that all the Medical Officers of Health of our London Boroughs, who reside within our area of supply, use gas for heating in their own homes, in some cases to the extent of a number of fires—nine in one house. At the Royal Institute of Public Health gas fires are installed in all the public rooms, as well as throughout the residence of the principal, Sir William R. Smith; and the Society have expressed entire satisfaction with the installation.

A large percentage of dispensaries for tuberculosis have had gas fires installed on the recommendation and/or approval of the medical authorities concerned. Again, the authorities of maternity centres, schools for mothers, day nurseries and crèches—which also have a doctor (who is frequently the Medical Officer of Health for the district) connected with them—have been persuaded largely to instal gas for heating. Of these institutions 80 p.ct. use gas for this purpose and to the extent of nearly 200 gas fires. In some cases 9 or 10 are installed—*i.e.*, practically throughout the building.

Many of the largest hospitals in London have gas fires throughout their wards. In some cases these are used in conjunction with hot-water radiators connected to central heating installations, but wherever these conditions exist, gas fires are fitted in the wards (and regularly used) for the brightness and cheerfulness obtained therefrom. It goes without saying that they would not be installed if there was any question regarding their value from the health point of view. For instance, at St. Thomas's, one of the largest hospitals, more than 200 gas fires and ventilated gas-steam radiators are in use. A more interesting installation, perhaps, because it is more recent, is that which we have carried out at Westminster Hospital, another very large institution. These premises are undergoing the process of reconstruction, and it is very pleasing to note that we obtained orders for a total of 181 fires. Gas fires are now installed in every ward throughout the hospital, and in the Resident Medical Officer's rooms. In the Nurses' Home, which adjoins the main building, there is a gas fire in every one

of the bedrooms, including those for the nurses, sisters, and the matron. Moreover, a demonstration room, in which the nurses are instructed in invalid cookery, has been equipped with a gas cooking installation, and gas cookers have also been installed in all the ward kitchens throughout the hospital.

The Company I represent supply the well-known Harley Street area, which covers a number of streets and squares whose buildings are occupied by the cream of the medical profession, among whom may be found the leading physicians and surgeons, including specialists of all kinds. It has recently been ascertained that, as a result of the special efforts which we made in this area in our original campaign, and our subsequent renewal of operations, we enjoy in this neighbourhood the highest consumption of gas per acre of any residential district within our area of supply.

We still send letters every autumn to all those doctors who are known to be using gas fires, and whose fires are periodically inspected and overhauled by us, asking for—indeed challenging—complaints, if any exist. We receive a large percentage of replies (no less than 35 p.ct. last season) to these letters, many of them opening up further business for extra fires and other apparatus; an infinitesimal number of complaints for attention; and last, but by no means least in value, an annual batch of excellent testimonials, which are exceedingly useful in assisting to convert other members of the profession, and as propaganda to the general public. This method of approach keeps us constantly in touch with these valuable consumers.

In addition to carrying out the campaign among the doctors, we still, as mentioned in 1912, also specialize in the same way, in connection with architects, surveyors, and estate agents, who, by reason of their profession, are intimately in touch with the general public; and within the past two years we have added consulting engineers to our list of such special classes.

The whole campaign continually produces excellent results, from the viewpoints both of the direct business with the individuals themselves and of that arising from their recommendations to their patients and clients.

Appendix.

The paper was accompanied by four illustrated appendixes, dealing with: "Gas Lighting, Eyesight, and Health;" "Gas as a Dirt and Labour Saver;" "Gas as an Aid to Purer Air," and "Gas as a Means of Healthy Heating."

I.—*Gas Lighting, Eyesight, and Health.*—It is pointed out that it is a proved fact that undue eyestrain, consequent upon inadequate or misapplied illumination, natural or artificial, not only weakens the eyesight itself, but causes fatigue and generally impairs the health. The science of illumination is therefore a question not only for experts to study, but for employers to apply in workshops, factories, and offices, for local authorities to apply in schools, and for every single person to apply in his own home. Good lighting increases output of work, and prevents accidents. Well-known authorities are quoted, and it is shown clearly that gas has everything in its favour from the hygienic point of view, as regards its effect both upon eyesight and upon the conditions of the atmosphere in any room where it is used; and fortunately its cheapness makes these hygienic advantages available to all.

II.—*Gas as a Dirt and Labour Saver.*—The overwhelming advantages of gas heating and cooking from the points of view of dirt and labour saving are emphasized, as is also its usefulness for providing a plentiful supply of hot water and for the hygienic disposal of refuse. Another section shows how valuable gas cooking is in ministering to the welfare of workers, and as an industrial fuel.

III.—*Gas as an Aid to Purer Air.*—Convincing photographs and equally convincing facts are given to prove the need of a purer atmosphere. The harmful effects of coal smoke are pointed out, and the reader is shown that gas is the remedy. The extended use of gas and other smokeless fuels had reduced the annual soot-fall in London from 76,000 tons in 1912 to about 40,000 tons in 1922. Fogs were fewer, sunshine had increased, and the death rate from diseases affected by smoke had fallen. The same improvement has been recorded almost throughout the country; but there are still some 35,000,000 tons of coal used raw each year for domestic consumption alone.

IV.—*Gas as a Means of Healthy Heating.*—Again, there are quoted statements by various authorities on the subject, which go to show that the gas fire is hygienic in every respect. The "Lancet," in April, 1914, reported on some tests carried out by them on 28 different makes of gas fire. In the course of their comments they wrote: "It is now fairly well agreed that one important reason why heating by gas has increased in favour is that the makers of gas stoves have been actuated by the view which we have for long endorsed, that radiant heat is hygienically the best; they have accordingly striven to utilize as much as possible the calorific value of coal gas in terms of radiant efficiency. In other words, their model now is in reality the hot radiant coal fire, which is instrumental in two directions. First, it warms the living room by means of its exclusively radiant heat; and, secondly, it provides a shaft which effects an important amount of ventilation. The gas fire should do the same. The combustion of coal, however, is always imperfect, and therefore wasteful and offensive; the combustion of gas is complete, and therefore economical and inoffensive. It is a manifest advance in domestic methods of heating by gas that the modern gas fire can now provide a radiant efficiency of from 50 to 60 p.ct. We attach importance to this step from economic considerations; but we attach far more importance to it when we know that this position can be gained with hygienic security."

The New President.

The President announced that the Scrutineers had reported the unanimous election of Mr. J. H. Ellis, Chairman of the Plymouth and Stonehouse Gas Company, to succeed to the office of President. (Applause.)

Mr. J. H. Ellis, acknowledging his election, said he was extremely obliged to them for their kindness in placing him in the position of following their esteemed President in the chair. It was no light honour, and the honour was enhanced by the contemplation of the Presidents who had passed before him.

[Mr. John Henry Ellis, the newly-elected President, is held in affectionate regard in Devon as the creator of modern Plymouth. Born in 1855, and educated at Steyning and Brighton, Mr. Ellis became a solicitor in 1877. After practising privately in Halifax, he was Town Clerk of Southport. In 1891 Mr. Ellis was appointed Town Clerk of Plymouth, and also Clerk of the Peace for the Borough, which latter office he still holds. From the Town Clerkship he retired in 1917 after 26 years' service, and, in recognition of his valuable work, was made first Honorary Freeman of the Borough and appointed Honorary Consulting Town Clerk. During the long and strenuous years of his office Mr. Ellis conducted the case for the enlargement of the Borough of Plymouth by the inclusion of Devonport and Stonehouse, which took place in 1914, and was requested to continue as Town Clerk of the extended borough to get the new administration into working order. Vigorously, and against strong opposition, he pushed through far-sighted schemes for water supply, sewage disposal, tramways, and extensive general public improvements. He went to Plymouth when it was a more or less old-fashioned borough of 1479 acres, with a population of 84,000, and left it a town of 6075 acres, with a population at the end of 1914 (the year of amalgamation) of nearly 215,000.]

Visit to a Biscuit Factory.

In the afternoon, the delegates paid a visit to the biscuit factory of Messrs. W. & R. Jacob & Co., at Aintree, the equipment of which had been described by Mr. Gibson in his paper. They were shown the whole of the processes, and at the close of the visit tea was served by the firm, for which thanks were duly returned at the instance of the President, who commented on the cleanliness of the works and the healthy and happy staff engaged therein. Responding, Mr. Jacob expressed pleasure at the visit, and added that one of the endeavours of the firm was to make their staff happy and contented by rendering the conditions of employment as congenial as possible. He believed they had been successful in doing this.

DINNER TO THE CONFERENCE.

In the evening, the Association were entertained at dinner by the Chairman and Directors of the Liverpool Gas Company. The guests numbered over 350, and included not only all those attending the conference as representatives of undertakings, but the Mayors of a number of adjacent boroughs and the heads of departments in the Liverpool Corporation.

Mr. J. Sandeman Allen (Chairman of the Liverpool Chamber of Commerce), proposing "The Gas Industry," thanked the Chairman for having compelled him to study something about the gas industry for the purpose of proposing the toast, and said that if there was one thing which emphasized the importance of the industry it was the pall of smoke and soot to be found in Liverpool and other large industrial areas. This could not but be detrimental to public health; and it was in the alleviation of these troubles that the gas industry scored. It was interesting, as demonstrating the progress of the industry, that the annual sales of gas now amounted to 240,000 million c.ft.; that these supplies were given through 40,000 miles of mains; that the capital invested amounted to £165,000,000; and that the number of men employed was 150,000. Moreover, it was a very happy industry. Whereas in many industries there were labour troubles, the gas industry had very largely overcome them by the co-partnership system. Everything which made for the conservation of coal supplies was truly a national service; and it was therefore to be hoped that the conference would encourage those concerned in the work. He coupled with the toast the name of the new President, Mr. J. H. Ellis.

Mr. J. H. Ellis, responding, said he had great pleasure in thanking Mr. Sandeman Allen for the gracious and happy terms in which he had proposed the toast. Merseyside was grateful to Mr. Allen for what he had done. His activities led them to express the hope that he would be called to the Council of the Nation, by reason of his eloquence and business ability. They wished him well. Of the gas industry, it could be said, as a certain famous advertisement said, that they were "still going strong." The disciples of Murdoch were going strong—stronger than ever. The suggestion had been made that electricity supply works should be worked hand in hand with gas-works—that the gas-works should carbonize the coal, and pass on the necessary heat in the form of gas for the generation of electricity. In this direction he believed there was a great future before them. If they had before them the interests of the country, the interests of the consumers, and put their own interests last, they could depend upon it that the public would see that they were properly remunerated for the work. He was immensely proud of the gas industry, and thanked them for having placed him in the position to endeavour to advance its interests during the coming year. To the extent of his power and ability he would do his best in the chair. (Applause.)

Alderman W. F. Vint, J.P. (Chairman of the Sunderland Gas Company) proposed "The City of Liverpool," and referred to the magnifi-

cent buildings of the city, the streets, the great trade done there, and the position which Liverpool holds among the large cities of the country. The administration of the city, too, he said, was admirable, while the lighting of the streets must be admired.

Alderman RUTHERFORD (Deputy Lord Mayor), replying to the toast, said the city was proud of the Directors of the Liverpool Gas Company. The name of each one of them was a household word; and they were proud of their work in many departments of public endeavour. They had interests which were widely valued, apart from those of looking after the supply of light, heat, and power; and the Corporation were delighted that the Conference was in Liverpool.

Mr. ALFRED TYRER (Deputy Chairman of the Liverpool Gas Company), proposing "The Visitors," said he regarded it as the most important toast of the evening. But for the visitors to this conference, they would not have heard the delightful lecture by Dr. Saleeby, they would not have heard the President's Address, or the other interesting speeches given that day. In Liverpool they were proud of the President, and held him in the highest esteem and respect; and he was also held in the highest respect in a large circle outside Liverpool. Again, but for the conference, there would not have been that most interesting visit to Messrs. Jacob's factory, which showed that gas and electricity could be applied side by side, and each serve a useful purpose. It showed that gas could be used for biscuit baking with the greatest advantage, and that it could be used for all sorts of other purposes. His own family had been connected with the gas industry for over a hundred years, and he personally had been connected with it for sixty years. Naturally, during that time, he had seen great improvements in many ways; and he was convinced that there was a great future before the industry. Reference had been made to gas and electricity being in use side by side; and he was interested in some houses now being built in which the lighting was by electricity and all the cooking and heating by gas. If those who controlled the electricity supply business would only realize that the gas industry wished to work in amity with them, he believed that great progress would be made, because there was a big field for both.

Dr. E. W. HOPE replied to the toast in the unavoidable absence of Dr. H. des Voeux. Speaking of the amount of smoke and soot in the atmosphere of large towns, he said that in Liverpool they had apparatus for determining the quantity of soot deposited in the city, and it was found that 56 tons of soot fell upon each square mile in a month. He would be glad to see the use of gas extended to a very much greater extent than was the case at present, not only for domestic, but also for industrial, purposes, because only then would they obtain that clearness of atmosphere which prevailed now in American and Canadian cities.

Mr. F. W. GOODENOUGH, proposing "The Chairman," said it needed no words of his to say how much they all owed to the graciousness of their Chairman that evening, Mr. Wade Deacon, who was also the Chairman of the Liverpool Gas Company. He also expressed gratitude for the hospitality of the Directors of the Company as a whole, and for the co-operation the Association had received from Mr. Upton, the Treasurer, and Mr. Gibson, the Engineer. All these gentlemen had contributed in no small measure to the success of the conference.

The CHAIRMAN, who was received with long continued applause, said that a very great compliment had been paid to his fellow Directors, officials, and himself by the manner in which this toast had been received. Speaking for himself, he was particularly glad that so many officers of the Corporation were present; and it was a great honour to the Liverpool Gas Company that members of the Council, including the Deputy Lord Mayor, were present. This showed the interest they took in gas affairs and in the Company itself. It was a very good thing from all points of view that the relationships between the Corporation and the Company were of that happy character. They were cordial and hearty; and he hoped they would long continue so. The Gas Company had a good Engineer in Mr. Gibson, upon whose advice the Directors could rely. He would also like to thank the officers of the "B.C.G.A.," because, though the post of President was supposed to be an onerous one, the officials of the Association did all the work, and the President took all the credit. The "B.C.G.A." had done splendid work.

A popular feature of the evening was the singing by four members of the Company's Treasurer's Staff—Messrs. Stanley Hopkinson, Harold Richardson, Ben Holland, and Frederic Hicks.

Wednesday, Oct. 1.

ANNUAL REPORT AND ACCOUNTS.

Mr. F. W. GOODENOUGH, on the presentation of the report and accounts, said the latter had been duly audited and carefully considered by the Executive Committee, and afterwards approved by the General Committee. He was glad to say that the accounts showed, as they had done from the very commencement of the Association, an increasing revenue, partly from an increased number of subscribers, and partly from increased subscriptions from existing subscribers. The Association had never had a setback in this respect.

The PRESIDENT formally moved the adoption of the report and accounts.

Mr. S. TAGG (Preston) seconded the motion, which was carried unanimously.

AIMS AND OBJECTS OF THE ASSOCIATION.

Mr. GOODENOUGH said it was a fact that they never had enough money for carrying out the aims of the Association, or for carrying on the work for the industry which they were anxious to do. They might say that to talk about the aims and work of the Association was not necessary, because everybody knew about them. This was the mistake that so many people made in regard, not so much to the work of the Association, as to the need of the work of the Association. He had heard it said more than once, "Why advertise gas; everybody knows all about it." This was a complete fallacy. There was scarcely anything that man used in which gas had not played its part; and anyone who really thought that the public knew all about the uses of gas was under a very sweeping delusion. Did any of them consider that gas had been too much advertised this summer; and that the Association would be over-doing it if they were to continue to advertise gas as regularly as had been done during the last six months in connection particularly with the British Empire Exhibition? He was perfectly certain that there was no one in the gas industry who felt that gas had had too much publicity this summer. As a matter of fact, they had been spending on publicity during the summer three times as much as they were normally able to spend with the income provided for them as the "B.C.G.A." This, he thought, was striking proof of the fact that they never had enough money for the work they wished to do.

He would like to refer, in order to epitomize the work of the Association, to a matter in the history of the Exhibition and of the Association and all advertising generally which occurred this summer—the holding of the Advertising Convention at Wembley. In connection with this there were meetings of the Public Utilities Advertising Section. This was the first time they and their electrical friends had met together on a common platform to discuss subjects of common interest; and he regarded this as a very happy incident. On that occasion a resolution was passed unanimously which read as follows:

> That it is as important to advertise the services which public utilities can render to the community as it is to advertise the goods of firms which have no monopoly rights of supply.
>
> That goodwill based upon equitable policy and "service-first" principles is essential to the permanent prosperity and persistent progress of public utility undertakings.
>
> That advertising is essential to the establishment and maintenance of such goodwill.
>
> That fully educated efficient salesmen are equally essential.
>
> That the possession of monopoly, whether by company or municipality, imposes on its administrators the duty of a policy of progressive business methods, in the interests of consumers, as well as of stockholders or ratepayers.

This last point was very ably made, he was glad to say, by their President in his Address—the point of it being the duty of public utility undertakings having a monopoly of the supply of gas in their own district (by no means the same thing as a complete monopoly, because they were open to competition on all sides) to advertise. The Advertising Convention also brought out another very important point—that it is the duty of every advertiser to make truth in advertising his fundamental principle. From the very commencement of the Association's operations they had laid it down as an absolute principle that they would say nothing, with regard to the service they commended to the public, which they could not vouch for as absolutely accurate in every particular. Because they had adhered closely to that resolution, they had won the support of the newspaper Press for their industry in a way which was very gratifying to them all. The newspapers had found that they always told the truth. They never let them down; they gave information which could be depended on, and the papers had never had to eat any words offered for publication. This had largely contributed to their building-up the goodwill both of the newspaper Press and also of the great mass of the public. The public had a faith in advertising which many people hardly realized. They had a faith in firms that advertised. Advertising was no longer a blatant endeavour to deceive the public and to persuade them to buy something they did not want, but it was a conveying of knowledge to the consumer of what service was available, and, in their case, of what it was in his interests to use as the most efficient and economical. In his experience it was true to say that the public year by year had an increasing faith in the firms that came out into the open and told the public all about their service. They regarded advertising, as the President had said, as an art. They also regarded it as a science. The difficult point in all publicity, the difficulty in all teaching, was to get what was in one's mind into the mind of the reader. The Advertising Convention at Wembley had done a great deal to make clear to those who advertised the principles upon which they should work, and it had made clear to the public the principles upon which the most successful advertisers were working to-day.

They would notice that the word "goodwill" came into the resolution he had read. It was laid down that it was important to advertise in order to create and maintain the goodwill which was essential to permanent prosperity. The grounds for this claim were that advertising was essential to goodwill, because goodwill was based on understanding—just as almost every quarrel in the world was based on misunderstanding—that understanding to be true must be based on knowledge, and that advertising was the conveyance of knowledge from one to the other. Advertising, after all, was only telling people all about what could be done for them and how it could be done. He emphasized the fact that efficient salesmen were as necessary as advertising, and pointed out that one of the principal achievements of the Association, apart from general publicity work, had been to establish salesmen's circles throughout the country, for the discussion, by the staffs generally, of the problems connected with service to the public. They believed that these constant discussions and increasing facilities for education would gradually produce what they so badly needed—thoroughly efficient staffs of salesmen throughout the country.

The Gas Exhibit at Wembley.

Advertising, said Mr. Goodenough, was not any more an expense than was money spent on labour-saving machinery. Advertising was a productive investment. It produced goodwill, and gradually built-up increasing business. This year had proved a record year as the result of the building-up done for the past twelve years by the Association, and crowned during the current year by the special effort represented at Wembley. Those responsible for the British Commercial Gas Association and for the work at Wembley were proud that the gas industry had subscribed £75,000 for the purpose of that Exhibit. The actual subscriptions already totalled £74,600 and he had just had a message to the effect that the Toronto Gas Company of Canada had subscribed £100 to the Gas Exhibit. (Applause.) This followed upon £250 from Melbourne, £250 from Sydney, £100 from Adelaide, £50 from Bombay, £75 from North Shore (Sydney), and a number of other subscriptions from small undertakings in the Empire. Anyone who had not yet subscribed fully to the Exhibit on this side of the seven seas must feel that the time to put that right had come. Wembley was a great co-operative effort on behalf of the Empire as a whole. The Gas Exhibit was a co-operative effort of the Empire gas industry as a whole; and the amount subscribed was the best evidence they could possibly have had of confidence in the co-operative publicity of gas undertakings.

A Duty to Advertise.

It was wise for every business to advertise; and it was not only wise but an actual duty for gas undertakings. No one else could render to the public in the area of the gas undertaking the service which it could render. No one else had the right to render that service; and it was the duty of the undertaking to let the public know all that gas service meant for the community. No one else could tell the consumer; and ignorance meant first of all a higher price, because of lower output, and secondly—something far more than material loss—a higher death rate in a district, if gas was not used to the fullest extent. Gas was bound to be the fuel of the future, and it was obvious from the ignorance that still existed on this point in all quarters—even in the gas industry—that they had got to keep on hammering away at making known the facts with regard to the utilization of coal resources.

Apart from the question of the effect upon national health and wealth, there was the effect upon the conditions of labour, both in the home and in industry, which gas was able to bring about. They had already largely abolished the worst and dirtiest drudgery in the home, and had largely altered the conditions of labour in the factories. What finer example of factory conditions could be found than those at the works of Messrs. Jacob's, where gas was the sole fuel used? It was a finely constructed factory on the most simple lines, clean as a new pin from end to end, and there was the healthiest and finest looking body of workers that he had seen for a very long time. The gas industry could honestly say that it had contributed to the health and well-being of these workers by providing, or helping to provide, ideal conditions. There again, it was necessary to inform the public of what gas meant to labour and the working people of this country, not only in their homes, but in the places in which they worked.

There was one other point sometimes raised in connection with the Association—namely, Could the money be spent better in the districts? They ought to spend all the money they could in their own districts on local advertising; but this could not take the place of national propaganda. No single undertaking could afford to advertise in the great organs of public opinion to which the public looked for guidance.

The Work of the "B.C.G.A."

The Association conducted and subsidized research, in order that the public might be truthfully informed. It was constantly consulted by its members, and was able to assist them with information. It employed a considerable body of experts who were always at the disposal of every subscribing undertaking, to enable them to make their own local work more efficient. It provided the material at wholesale cost for the retail work of local publicity. It supplied material to writers and lecturers for informing the public in less direct ways than the advertisements. It educated their educators by supplying accurate information to the teachers in schools. Nothing had been more successful than their "Notes of Lessons for Teachers." It organized salesmen's circles and by them and by its district and national conferences provided the means whereby those who were willing to co-operate were able to secure the mutual encouragement, education, and inspiration that came from comradeship in work for the industry and for the community. He put this last because it was to his mind the most important advantage of the Association. It gave them, as the conference had given them, inspiration drawn from each other from co-operation and comradeship—not only information, which was of great value, but something of still higher value, namely, inspiration for carrying on their work efficiently and with enthusiasm for the benefit of their fellows.

The President expressed the thanks of the meeting to Mr. Goodenough for his interesting and instructive address. The result of it would be that their confidence in the administration would be increased. Mr. Goodenough had told them that there was nothing but truth in the advertisements of the Association. What must be the natural consequence? The advertisements must have a tremendous effect in time, because truth would, in the long run, prevail.

ART IN INDUSTRY: THE INFLUENCE OF BEAUTY IN COMMERCE AND INDUSTRY.

An Address by Sir Lawrence Weaver, K.B.E., Director of United Kingdom Exhibits, British Empire Exhibition.

I should like first of all to say, if I may, how very grateful I am for the opportunity of addressing so distinguished an Association on a subject which is very dear to me. Mr. Goodenough in his luminous remarks just now referred to the Wembley Advertising Convention, and I had the privilege of making the first practical address, after the addresses of welcome and so on, and was allowed to speak there on the art of display, which is one of the branches of publicity in relation to the Exhibition related to the general publicity in which an Association like this has engaged so successfully. What I dwelt on there was the possibility, and, indeed, the obvious desirability, of getting beauty into all the relations of life and into all common things. Now, we are all agreed in desiring beauty, and I do think it is reasonable to ask why we get so little of it. I think it is, perhaps, because art has been regarded as a thing altogether apart from the common life—as something in a frame in the drawing rooms of comfortable persons. In the old days, art was fostered admittedly by the few. The patron of the artist was the man who drew his wealth either from the land or from commerce, but not from the thing which you represent—industry—because industry in the sense in which we understand it now, the directed co-operative effort of a large number of persons, did not then exist, and ultimately the wealth which produced the art of the world, the art of mediæval times in which we rejoice, came from the land. The making of things then was an individual effort rather than a co-operative effort, and it was the individual who produced and distributed beauty.

I submit to you that the industrial revolution altered this balance altogether, and in old countries and new alike the surplus wealth which is the ultimate source of beauty that resides in the fine arts tends to be in the hands of industry rather than of the land. Therefore industry has a very substantial duty to support the fine arts, as well as the applied arts. I refer to the applied arts because, after all, they are the efflorescence of the imagination of man; they are the visible expression in terms of beauty of the interior life of man. Liverpool itself is a very happy place in which to speak of these things, because you have great examples of this efflorescence of the interior life of man in the civic spirit as shown in St. George's Hall, and in the spirit of religion as shown in your great Cathedral; and these great efforts have got to be—if I may use a vulgar word—financed by industry, which is at present the great source of wealth. If the fine arts are not so supported, they will die. But industry, I suggest, has a greater and wider, and more obvious, duty, which arises out of the very business in which you are engaged, either of making things or of operating public services. Now, will industry, and can industry, give the beauty which the land can no longer afford to provide, and will it give it in the very course of its own daily work? Will it show by beauty and by seemliness that it delights in service and in the righteous service, of which no doubt our Lord Bishop will presently speak, because, after all, beauty is really the outcome of delight? Will industry, therefore, produce that beauty by showing real delight in its making or in its service?

The power of industry to do this, when you come to think of it, is really infinite, because industry controls the form and colour of everything we use, and it also controls the way in which these things are commended to the public, as Mr. Goodenough has exhorted you to do in his speech this morning. If the men who control industry, and who know industry in the same way that this Association knows it, will join hands with the men who control government by securing some kind of beauty in common things, universally expressed and universally seen, then all the arts will blossom throughout every branch of industry, and beauty will become definitely and continuously associated with our common life. In the past this has not been so, because industrialists have laid a very heavy hand on the land. They have been heedless; they have been hasty in making wealth. They knew no better, and we knew no better, and nobody knew any better; but when you consider the devastating blight of ugliness which the industrial development of the nineteenth century laid on this land, you will see that, after all, we have some right to demand something in return from you who now have learned better things. We have some right to expect something of you. You have done the public very faithful service; but you do not do it, I believe, altogether unrewarded, and very reasonably so. We are, however, entitled to expect something from you—we ordinary people, like the Bishop and myself, who are not controllers of vast industries, and who want to live in a beautiful world. We are entitled to ask you to contribute to that beauty which is at present somewhat conspicuously absent. No doubt, of course, we get in our own life the measure of ugliness that we deserve, just as we get the Government we deserve. I want to say something else, and that is that the artists who evoke beauty, whatever sort of beauty it is, are a very precious part of the community; but you may have noticed that they have that ugly habit of getting hungry about every five hours, and you must give them the means to deal with this difficulty. If the artist cannot make a living out of producing works of fine art—I do not attach much importance to these distinctions between fine arts and applied arts, although there is a rough distinction; a cathedral is a work of fine art, and a poster is a work of applied art—he cannot produce works of art. Therefore you industrial

people have got to support the artist, otherwise beauty will die out of the world.

The Commercial Gas Association have got a very clean record in this matter, and you can look me in the face very cheerfully, because you have employed exceedingly good people to present to the public your idea of gas. I will not go into the question of whether it is a good or a bad idea, but you have presented that idea very attractively, and with a real sense of the usefulness of beauty in public service. You have not employed people like Reynolds or Turner, but you have employed men who have done work which has given great pleasure to an enormous body of people, and, at the same time, has been useful to the industry—men such as Lewis Baumer, Claude Shepperson, Townsend, Fred Pegram, Septimus Scott, to mention but a few of the artists you have employed. This is a very good record. You have realized that, after all, your contribution to beauty in common things must be very largely by way of publicity. You cannot go stencilling jolly patterns on gasholders; it is not done, and it would not be amusing if it were. But you can encourage people to employ pleasing fittings and to use illumination in a pleasing way and in an artistic and reasonable manner. You can commend the manifold uses of gas by publicity which relies upon the artist, who must make the appeal striking and convincing and trustworthy; he must also make it beautiful, if you please.

You have done that at Wembley in a very remarkable way. Mr. Goodenough has spoken of co-operative effort. I am the Director of United Kingdom Exhibits at Wembley, and know something about exhibitions now; and I say, not as flattery, but as very simple truth, that the only really entirely satisfactory piece of commercial publicity at Wembley is the gas exhibit, because it is the only piece of publicity which has entirely suppressed the individual, and has gone out simply to make a fair and beautiful and praiseworthy picture of an industry. [Applause.] It is not for me to describe how you have done it. Of course, it is largely due to the extraordinary ingenuity of Mr. Goodenough, who charms £75,000 out of your pockets. You look rather hard-faced men, and I should not like to try to get £75,000 out of you [laughter]; but Mr. Goodenough has done it, and with the money thus ingeniously obtained he has put up an extraordinarily attractive picture at Wembley. That is beauty associated with commerce in service, and it is really the convincing art in advertising. I do not want to put this too high, as regards beauty in advertising or beauty in the common life, or any of these other phrases which are very appropriate for use on a platform, but which generally are not convincing. I do not want to put it too high, but I am going to plead for seemliness in common things, and for the kind of art that everybody can understand. You must give people good forms and jolly patterns, and colour that is clear and decent and fresh, and not muddy; forms that people can really understand, and that are significant of something which does appeal to them. You do not want versions of old patterns that are very appropriate to look at in museums, but which do not convey anything to the mind of 1924. You want to give the artist a chance to express himself, and to express modern common life, in an intelligible and intelligent manner, and in a persuasive and beautiful way. The work of an Association like this can be of enormous utility to the artist at large, and, through the artist at large, to the general community, which is really very tired of ugliness, but does not know how to get rid of it. Of course, a good many of us do not know when a thing is ugly; that is because education in these matters has been defective.

One of the speakers this morning referred to commercial life and commercial work as being a kind of university. Well, the advertising art of a great industry like yours can be a sort of art department of a university of the people. You can show people things of beauty at every street corner, if you will; and as Mr. Goodenough knows, and as I hope you all know, real art is not a much more costly thing than ugliness. Art is not a kind of coating which is applied to things normally base and ugly. It is a character in things, not something stuck on the outside, and there is no reason whatever why everything you use in your industry, every gas fitting that you commend to the purchaser, every gas stove that you put into people's kitchens, even the bill on which you charge your beastly therms [laughter] to the ordinary public, should not be a really beautiful thing. In all these things, and in everything we touch, it is possible to introduce beauty. I am not talking "high falutin' stuff." This is real sound commonsense. There is no reason why all the things which we employ in industry should not be seemly and decent. We do not want them to look like Leonardo da Vinci's pictures or Michelangelo's statues, but we do want them decent and pleasing. They should be of good shape and of good pattern. It was Robert Louis Stevenson who said that the essence of art is putting things into patterns. You know that with all things you have to give them a form, and I do implore you to go to the artist and get that form right. In the Wembley Gas Exhibit you really have got it right in the most extraordinary way. There are those two halls, one devoted to the domestic uses of gas, and the other devoted, in the main, to industrial uses of gas, and there are a great many appliances of all kinds; there are the rooms depicting the Seven Ages of Woman. These things have been laid out so that they convey to the public mind, through the real beauty and seemliness of them, the idea that gas is a pleasing thing. Surely it is worth your while making quite sure that everybody thinks gas is a pleasing thing, because if they do they will buy more of it, and will be pleased at the same time, and if they buy more you will be pleased, and everybody will be pleased. Therefore it is just ordinary common-sense that you should carry into all these industrial expressions of common things in our common life that sense of beauty which has been so extraordinarily absent from everything industrial during the last hundred years.

I know, of course, that I am preaching to the converted; this is not the Association I ought to be speaking to on this subject. I ought to be talking to other industries which have not done all the good things that you have done; but, after all, it is the converted who generally like sermons. The real backslider does not ask me to Liverpool to talk this sort of stuff; but quite seriously, it is only by education that we shall be able eventually to set up some standard of beauty—not the beauty, as I say, of the pictures in art galleries—but the beauty of things which you and I and every man, woman, and child in a great city such as this can appreciate. A great Association like this can do a lot to educate the man in the street, and then the man in the street will not have the terrible discomfort which one has in the knowledge that he is being educated, because he will be educated without knowing it. This is the best sort of education, because you can get all these people at the street corners with your posters, and in everything you do to approach your customers, and in every way you deal with them, you can present the fact, whatever it may be, in a seemly and beautiful way. I do ask you to go on with this good work, and to do so not only for the sake of the people whom you influence by importing a sense of beauty into common things, but in order that you may use your influence with other industrial organizations; and they want a lot of that influence.

Wembley is really very beautiful in many ways. The arts of display there show the arts employed in the service of industry more effectively, I think, than in any corporate commercial act that has before been performed by the British Empire; and among all these efforts, various though they are, your effort shines out, I think, as a more complete and a more delightful thing than the effort of any other industry. Therefore I do wish you good luck in this task of carrying beauty into the common life, and I hope that you will be able to have an influence upon other industries and make them do all that you have done so successfully. The same principles affect other industries, and so you will be able, in your beneficent way, to import beauty into the common services of mankind. I wish you good luck in all you do, and thank you very much for listening to me so patiently.

Councillor Lawrence D. Holt, J.P. (Liverpool), proposing a vote of thanks to Sir Lawrence Weaver, said he had given them an interesting and delightful address. They would, however, wish to thank him for more than his address; they thanked him specially at this moment for the large part and the great responsibility he had had in connection with the Wembley Exhibition. Dealing with the address, he thought they would agree with him that those who were in control of industry were under a great challenge They were probably under a greater challenge to-day to show their fitness for their job than they had ever been before. Those who could use the gifts of nature most beautifully—*i.e.*, most intelligently, for beauty comprehended true fitness—were the most fit people to control industry. To this extent he thought Sir Lawrence Weaver had given them an absolutely true statement of policy—of what those who were in control of industry must do if they wished to retain their jobs. He confessed and regretted, as a shipowner, that the shipowners had asked Parliament to exclude ships from the operation of the new Smoke Abatement Bill. Speaking as a humble municipal administrator, those who were responsible for erecting the houses which were being built all over the country ought to see that every house was a smokeless house. It was an absolute scandal that in these enlightened days anyone should be putting up a house which was not destined to be smokeless.

Mr. J. W. M'Lusky (Glasgow), seconding the resolution, said they had been listening to some very high-class philosophy which appealed to them in the gas industry, because they could look Sir Lawrence Weaver cheerfully in the face and claim to be preservers of art. The gas industry had all along been fighting the smoke evil. In the new housing schemes many of the buildings were already smokeless, while in others there was only one grate for coal. In Glasgow they were now erecting plant which would produce a smokeless fuel to suit these grates; and there was no reason why, in the future, all new housing estates should not be completely free from smoke. It was also interesting, perhaps, that during the past month two of the most important engineering firms in Glasgow had decided upon gas for their engineering extensions, and this meant that at least the new buildings would be smokeless. They had seen the very fine factory of Messrs. Jacob & Co., and there was a factory very much on the same lines, belonging to Messrs. M'Farlane, Lang, & Co., in Glasgow. It was in a semi-residential district, but the people were hardly aware that there was a factory there at all. Electricity was used for lighting and power, and gas for heating. The gas industry was out for a purer atmosphere, and they were determined that the next generation, at any rate, should be healthier and live under more hygienic conditions than the present one.

The President expressed their indebtedness to Sir Lawrence. They hoped to be able to make some use of what he had said. He spoke of high ideals. It was not easy always to achieve high ideals, and from the mere business point of view, whatever one's ideal might be, one had to supply what the customer would buy. This was one of the limitations of art in industry. After all, it

came to the question, "What is artistic?" Who was going to decide? The artists did not agree any more than the doctors.

THE WORKER AND HIS WORK: HUMAN RELATIONS IN AN INDUSTRIAL AGE.

An Address by the Right Rev. A. A. David, D.D., Lord Bishop of Liverpool.

When I was invited to address this Association, I could not help wondering what in the world you wanted a Bishop for in connection with your kind of work. But when I read the literature Mrs. Cloudesley Brereton sent me, and still more when I met that lady herself, I realized how much I, as a humble member of the public, had to learn about your work—and you will admit that that was a wholesome frame of mind in which to approach the task you offered me.

The first thing I want to do is to congratulate you upon your faith and your imagination when you founded this Association twelve years ago, and also, if I may, upon your courage in calling a lady into your counsels and giving her a generous share in the leadership of your enterprise. You have created, it seems to me, and she has helped you to create, a new conception of industrial duty and civic responsibility; and if any words of mine can help you and her to bring that conception into the public mind, they will not be altogether wasted. It has been a revelation to me to become aware of the immense range covered by the operations of your industry. I doubt if the public could ever realize the multiplicity of the contributions of labour in craftsmanship and research and distribution but for this Association, which gathers them all into a unity of public service. Your technical side spreads out from fitters to highly qualified engineers. You are concerned with scientific workers, from laboratory attendants up to chief chemists. You are allied with every fuel industry and many others. You touch the medical and you do not escape the legal profession. You are owners or joint owners of railways and docks and shipping. In short, this industry is a microcosm of all industries. Its variety gives you an opportunity, which no other industry that I know of enjoys, to study the interesting conditions of industrial life and work, and to search out the root-causes of the *malaise* from which they still suffer. And the very complexity of these conditions as you see them may well bring out for you more clearly than for some the one common element in all with which you deal—the human element. You have risen to that responsibility. In an age when philosophers are exploring personality, and psychologists are giving us new insight into the springs of human conduct, and economists are at last taking the human factor into full account, it is no idle compliment to say that you are showing the way to a full recognition of the personal factor in industrial life. You are showing it not only in the systems and methods you devise, but also in the spirit and temper in which your policy is conceived.

When we speak of humanity as a quality of temper, I take it that we mean a certain power of intellectual sympathy. It is not purely emotional—that way leads to sentimental faddism. Neither is it purely intellectual—that was the mistake of the old economists. They worked on the assumption that you could give the public what they demanded, and thought they had the right to demand, by securing cheap capital, cheap material, and cheap labour. That is how the problem works out by logic. But, thank heaven, human life is not logical. They forgot this, and we have been suffering for it ever since. It will take us yet a generation or two to make good their mistake of treating the labour of men on a level with dead material things. And we shall do so just as soon as we know men at least as well as we know, or think we know, the stuff they are working.

Complete human relations in industry will be attained when all who contribute labour of brain and hand, as leaders or led, understand not only each his own contribution as part of a great whole, but when all understand each other at least as well as they understand themselves. All this sounds like one of those airy generalities which people of my profession are rather fond of throwing at people of yours. I can well understand that you sometimes find this a little irritating. I should not wonder if even in this present company some are silently saying "that it is all very well in theory but . . ." Let me, therefore, pass at once to tell you what is in my mind about three of your own adventures in industry which seem to me to be already translating theory into practice, and idealism into fact.

The first question is co-partnership. When you give a man an interest in the prosperity of the big concern in which he plays his little part, you are giving him more than a pocket interest. You are identifying him as well as his work with a circle of co-operation wider than that in which he has moved before, but not too wide for him to feel. It is a different circle from that of his union, but it is on a higher level because it holds a richer variety of labour activity. This makes one of your troubles. The unions have, or had, a morbid suspicion that co-partnership will tend to withdraw their members from union loyalty. This fear misses the human touch. It means that they cannot trust their men to be faithful to a double loyalty—on the one side to their own craft brethren, and on the other to all their comrades in a great public service. There is another fear that stands in the way of co-partnership progress—the fear that it may lead to a demand from the workers for a share in the control of the company. Well—that may come. Personally I hope it will. In the meantime I am glad that you are not deterred from a good policy by fear of all the bad things it may lead to. It is a very common fear—that "thin end of the wedge" bogey. It paralyzes many people, and it gives many others an excuse for not taking an obvious next step. For my part, if there is something that ought to be done now for us or for our children, I would join hands with my Conservative friends or my Socialist friends or my Communist friends, if I ever have any, and go along a common road with them until it is done—putting off as long as may be the parting of the way. You do not claim that in co-partnership you have found the panacea of industrial trouble; but you do claim that as things are it can do no harm, and you can prove that it has done much good. I hope that your lead will be widely followed.

Next I want to touch upon your enterprise in the education of your adult workers. There you are meeting one of the highest of human appetites. They are conscious—not all of them, but the best, and a growing number of them—of the arrears they have to make up because they ceased to learn at an age when vital learning ought to begin. You take this appetite at its best; you help them to satisfy it—to enable them not to make higher wages, but to possess higher powers of thought and expression and a wider outlook over the world of ideas. I gather from your courses that you by no means exclude technical instruction. That is right. A man who is learning all about his own job is thereby fitting himself for other and wider learning. I have not always found it easy to persuade my labour friends that a course for them or for their children ought not to consist entirely of what are called humane studies; but it is true. I hope, however, that wherever it is possible you leave choice of subjects to them. It makes all the difference—to the man—whether he is studying something imposed on him because somebody else had thought it good for him, or something that draws him into new joys of his own. Shakespeare was right when he made one of his characters say:

> "No profit grows where is no pleasure,
> In short, sir, study what you most affect."

I know very well the objection there. I have met it often in workers' educational tutorial classes; but it seems to me to be rather an inhuman objection. People say that if you let them choose the subject for the next lecture they will all vote for a course on Socialism. Well, why not—provided always that the man who takes the course knows not only all about Socialism but a great deal about a great many other things? There are lecturers who are not fit to teach anybody anything, because they have only read text books about Karl Marx. I know nothing that so awakens the whole man as the chance of joining with others in a common search for truth. I have seen it change men's lives; it has delivered them from the grip of hopeless monotony. I do not put to you the point that it has made them better workmen? it has done more than that—it has made them happier and better men.

I must tell you here a pathetic illustration of the contrast between their daily work and yours and mine. I owe it to a new friend of mine, the Warden of Mansfield House. One day he was trying to persuade a young man that brain work—(say) administrative work in an office—may be not only as productive, but as hard and exacting and exhausting, as manual labour in a mill. It happened that this man had a real bent for mathematics, and a genuine delight in that subject. My friend said to him, "Now supposing you were to spend a whole morning in working out the differential functions of something, would not that be hard work?" The answer was, "No, that sort of thing is interesting."

Let me tell you one thing that often prevents masters and men from understanding one another. It is that the one as a rule expresses himself better than the other. I remember once being allowed a share in starting a branch of the Workers' Educational Association. The question arose as to what should be the subject of the first course of lectures. To my surprise the Committee voted for elocution. Afterwards some of them explained the reason. They said: "When we sit on a Joint Committee at the works, or when we are up against you gentlemen here in the town, we feel that we cannot say what is in our minds as well as you can say what is in yours. This upsets us, so that often when we speak we use stronger language than we mean to." You see exactly how this happens. The man who is not master of his tools will always use them more violently than the man who is. Well, they had their lectures on elocution, and got hold of a retired actor to give them; but I do not think he did much for them, and in the end they submitted to some lessons in elementary English composition by the new methods which, of course, began by teaching them to think straight. I suggest that, when you try to understand them, it will help you if you remember that they are not always speaking quite the same language as yours.

I am glad that you are willing to co-operate with other educational movements—I hope with the Workers' Educational Association, among others—and I observe that you do not stand aloof even from that much abused authority the Board of Education. You have discovered that, whatever was the case at one time, the Board are now almost as human as a Board can be. In some ways you are in advance of them, but they do not mind that. They like experiments and encourage them; and if they cannot at present contribute as much to the cost of experiments as they would like, it is not altogether their fault.

You are, it seems to me, altogether right to realize that you cannot work any part of your educational machine alone. I wonder if you would think it presumptuous if I briefly consider some possibilities of a fuller co-operation on your part with exist-

ing educational agencies in the training of your boys. You take boys into your industry from the school-leaving age. It is clear what you want to do for them. You are not training them for what you hope to get out of them next day, or next year, or ever; but you recognize that the best service of any kind and at any age comes from persons who are growing and who are exercising all their powers freely and happily in life as they see life—*i.e.*, who are really alive. You want their development—a harmonious development of the whole personality—to begin in the boy. How can you give him the chance he needs? The difficulties are great. Some of them are specially great in your industry, which, I take it, is to some extent seasonal. Therefore, I imagine that you cannot guarantee to all of them continuous work throughout the year. Moreover, in spite of your admirable systems of apprenticeship training which have worked so well for 20 years, you cannot reckon that all the boys who come to you will stick to you. Anybody who has to do with working boys in big towns knows how prone they are to throw over one job and seek another. And some of your concerns are small—so small that they could not run successful courses of their own. All this points to the necessity for combining your educational forces, not only among yourselves, but also with other industries. You can only do the real thing, the big thing, for your boys if you co-operate. Let them live and learn and grow in schools outside your works, and side by side with others who are beginning work of other kinds. Where shall these schools be found? We shall have them one day, as we all hope, in the Continuation School. We are not without experience of them already. Help us with your broad views on education to develop the best of that experience. When they become universal and compulsory, let them be based on a real understanding of the boy and what he needs for growth. One such school I know already. It has been built up by contributions of wisdom and foresight and sympathy from the County Education Authorities, the urban authority, the directors of the two large engineering concerns, and men of experience in teaching and training mostly connected with a great public school, and it is administered by a governing body on which all these are represented. Close touch is kept with the teachers of elementary schools; but our teaching is different from theirs, as it ought to be. It is of no use to offer young men and women a repetition at a further stage of the methods of their elementary school life. That is one of the weaknesses of our present secondary education. Our curriculum is a good mixture of humane and technical, and it is elastic enough to give every boy a chance of going ahead on his own lines. This is much more important than the list of subjects it contains. The dullest boy has some spark of interest, something he can do, and knows he can do, and wants to do better. Our task was to discover in each case what this was, and to let his development branch from this. This, of course, means freedom. We are not afraid of freedom; and the very fact that we took boys and girls continually into counsel created an atmosphere of growth. It also generated loyalty; so that, though the school was, and happily remains, compulsory, yet there is growing up a sense of attachment to it. They feel that they belong to the school and the school belongs to them.

You see what I am driving at. I want these places, when they come, to be to your boys what Eton and Harrow and Rugby and the rest are to theirs—a centre of loyalty and a source of friendship and personal care and guidance all their lives through. The boy, of all human creatures, needs to express and exercise his affections first in smaller circles that are near to him. A boy once explained to me his attitude on that great question of football. He said: "You see, Sir, I'm all for Scotland against England, and especially for the East of Scotland against the West of Scotland!" That sounds rather a complicated attitude, but it works out quite simply. I want your boys to be able to depend on a supervision which shall be not only human and sympathetic, but also continuous. At present, when he is working he looks to his firm, when out of work to the Labour Exchange. If he wants a job, he may turn to an educational authority or an after-care committee; but the whole provision for him suffers from scrappiness.

It is only a dream to look to the State to found or administer institutions as human in their appeal to the whole boy as the public schools are? It has never been done yet in any country I know of; but no other country has shown educational imagination so lively and so widespread as England has, or so much willingness to bring contributions of faith and counsel and experiment into a common stock. At any rate, we can be sure of yours; and we need not look only to the State on this matter. There are settlements and other similar private ventures which, if they were trusted and supported, might well develop into what I have tried to sketch; and it may be that a dream like this may attract benefactors to found public schools for the masses. The spirit of William of Wykeham and Lawrence Sherriff will live and work again.

I have been spending most of my time and your patience on the education of boys, partly because I know something about them (which cannot be said of every subject on which I find myself called upon to address my fellow men), partly because I have learned a confidence in boys stronger than I have in any other class of human being. I learnt it by contact with one kind of boy in Bermondsey, and another kind at Clifton and Rugby, and it was confirmed and crowned by the war, when it taught us that our men were made of better stuff than we know; and their sons and brothers are made of the same stuff. Our boys are just waiting for their chance.

You have shown me a great and representative industry setting itself by fundamentally right and true methods to lessen discord, to increase mutual understanding, to multiply means of usefulness and happiness; and you have given me hope such as few other of my contacts with British commercial life have afforded me. It is surely more than symbolic that you whose work began in meeting man's need for material light and heat should proceed to minister to his higher appetite for spiritual enlightenment and the warmth of love.

Industrial Unrest.

The President, proposing a vote of thanks to his Lordship for his address, said he was glad to think that in the gas industry they had very largely adopted co-partnership. This did a great deal, though it was by no means a perfect organization. At the present time they were all troubled about unrest, and there was recently in "The Times" an article by Sir Robert Hadfield drawing attention to the serious state of affairs in this country. Sir Robert referred to a suggestion made some years ago by Sir Charles Wakefield that there might be a truce called to disputes. Mr. Barnes, well-known in the Labour world, thoroughly approved of what Sir Robert Hadfield had said, and thought such a scheme would be the salvation of the country. Mr. Barnes wound up his letter to "The Times" by asking, "who will take the initiative?" This was where the difficulty arose. There had since been letters in "The Times" to say that the whole thing was impossible. He did not believe this himself. ["Hear, hear."] If some organization would start, great results would follow. He ventured to suggest that it might be possible for the Church to take some action. He did not mean the Church of England particularly, but the Churches which represent the higher thought and aspirations of them all. Why should not the head of the Church of England, the heads of the Church of Roman Catholics and of the Free Churches confer together to ascertain whether an offer of help would be useful to both sides? There were organizations on both sides; and why should not a few men who had recognized positions take action when both sides were hesitating to come together, and ask them whether they could not meet and discuss their difficulties? Much might arise from such a conference. There were people who deliberately fomented trouble, because their object was not to heal, but to destroy. This had to be faced, and one of the best ways of facing it was a conference of employers and employed, who in the great bulk were sensible men.

Mr. J. H. Ellis cordially seconded the vote. It was really a splendid thing for a man with the exacting administrative cares of this great diocese to find time to come and give them such an inspiring and helpful message. They had been told that in cleanliness, beauty, and truth this industry of theirs, like all others, would flourish. There was one thing further needed—industry. Mr. Clynes had the courage at Birmingham last year to speak against "ca' canny," a Scotch word for laziness. The vice to-day, he was afraid, was the pursuit of laziness.

The Lord Bishop of Liverpool, in reply, said he had heard the President's suggestion before. It had come to him, of course, from the Churches themselves; it had come to him once or twice from Labour circles; he had even heard a hint of it, six or eight months ago, in Government circles; but he had never heard it from the ranks of the employers. It was an extraordinarily encouraging thing to find that there appeared to be a consensus of opinion that the Church, at whatever cost, ought to take a lead in the matter. The President spoke of initiative. The initiative for the healing of this disease must come from a quarter where there was abundant faith and courage; and where could one look better for that than in the Church? He was speaking of the Church in the widest sense of the word. They had had before their eyes a conference on politics, economics, and citizenship, called Copec, which, he thought, stirred men's hearts as well as their minds when it bade them face with open eyes the position they were in and the dangers which threatened them. He could not help hoping that the conference might yet supply them with such machinery as they would need if the Churches gave them further the commission which Mr. Wade Deacon suggested. It would mean an enormous happiness if they could make some such device of that kind together. He did not wish to embark upon all the possibilities that might grow out of it. It had really stirred his heart. He could not, of course, speak for the Church of England, much less for the other Churches, but they could see for themselves, in that temper that was arising among them, the thing he could not help seeing—a very great hope for this and for many other things.

Vote of Thanks to the President.

The President was heartily thanked for his services, on the proposition of Sir Thomas Rowbotham, seconded by Mr. A. W. Smith (Birmingham).

A Luncheon.

There was subsequently a largely attended luncheon at the Midland Adelphi Hotel, offered by the President-Elect, the Vice-Presidents, and members of the Association, to the President of the Association and Directors of the Liverpool Gas Company.

Mr. J. H. Ellis, proposing "The President of the Association and the Directors of the Liverpool Gas Company," said the last three days of their lives had been made extremely happy. Those in Liverpool had ministered to the comfort of those attending the conference in a degree that was seldom attained; and though in the year to come they would do their best to emulate this in Plymouth, it would be a very difficult task to maintain the high standard set both in Birmingham last year and Liverpool this year. Mr. Wade Deacon, too, had discharged

his duties as President in an exemplary manner, and had given them a delightful address of a most helpful character.

The President (who received an enthusiastic welcome on rising to reply) said the Directors of the Liverpool Gas Company deeply appreciated the way in which those attending the conference had accepted what had been done for them. The Association had not yet achieved all that they desired, but during the year of Presidency of his successor, Mr. Ellis, they would reach, he would not say the pinnacle, but at any rate a very high point indeed. The work of the Association was most ably carried out by all its officers. The Directors of the Liverpool Gas Company appreciated the work done by their own officers during the conference. The Treasurer (Mr. Edwin Upton), for instance, had done a great deal of the local work. To all these credit was due for the success of the conference.

Sir Lawrence Weaver proposed the health of Mr. F. W. Goodenough, Chairman of the Executive of the Association. In a humorous speech he recalled how the name of Mr. Goodenough had come to be regarded as synonymous with that of the Association—indeed, on three separate occasions friends of his, when he had mentioned that he was going to speak to the British Commercial Gas Association, had said: "Oh, let me see; that is Mr. Goodenough." Moreover, these three same people had referred to Mr. Goodenough as the whitest man they knew. [Applause.] He himself could confirm this, and it was with great pleasure that he proposed Mr. Goodenough's health, as the Chairman not only of the Executive of the Association, but also of the Gas Exhibit at Wembley. He did not know whether any of those present could appreciate the extraordinary complexity of the task Mr. Goodenough had had in presenting this picture of the industry. It had been gigantic. Mr. Goodenough had said in a very light and casual manner during the morning that they had got £75,000 together for that exhibit; but though he had done it with the charm and grace and facility with which he could do these things, it had been an enormous task, and the industry should be grateful to him for having carried the thing through with such great success to the satisfaction of everybody concerned.

Mr. Goodenough, responding, said it was due to Sir Lawrence Weaver to thank him for the help he had given in connection with the gas exhibit at Wembley. There had been difficult times before the opening, and even since the opening, of the Exhibition, and Sir Lawrence had been a great help. He was always a strict critic, but a thoroughly kindly and helpful and sympathetic critic. This was the kind of person one wanted in life—someone who would help, out of his store of knowledge and experience. For himself, he wished to thank the Association for the confidence which for some thirteen years had been reposed in him as Chairman of the Executive. He often wondered whether he had outworn his welcome in that position, but so long as he could really be of service to the industry he was willing, with the permission of his Directors, to carry on. He wished them to realize, however, that he did not want to stay in the position for one minute longer than he could be of real service and was really welcome.

The toast of "The Chairman" was proposed by Mr. Wade Deacon and acknowledged in a very few words by Mr. Ellis.

FUEL RESEARCH BOARD.

Extension of Activities.—Low Temperature Carbonization.

The report of the Committee of the Privy Council for Scientific and Industrial Research for the year to July 31 last, which has just been issued by H.M. Stationery Office, includes the report of the Advisory Council, whose Administrative Chairman is Sir William S. M'Cormick, LL.D. The Advisory Council refer in their report to the activities of the Department in various directions, and there is also a summary of the work of the different research organizations during the year.

Advisory Council's Report.

The Advisory Council report that a memorandum was submitted to them in October, 1923, by the Director of Fuel Research, in which he drew attention to the need for the development of the work of the Board, the directions in which the need was most urgent, and the financial provision required for the development. The Director referred in the memorandum to the necessity for caution and foresight in arranging for the collection of information, and planning the preliminary experimental work, and urged that the work had now reached a stage at which the value of the preliminary work would be very largely lost unless it was continued on an adequate scale.

The Council entirely concurred with this view, and realized that the full return from the valuable work already done could not be obtained without a considerable increase in the staff working on the problems. They accordingly recommended proposals for the gradual increase of the facilities at the disposal of the Board. The proposals involved the early appointment of an Assistant Director, an increase in the staff of the Fuel Research Station, and an extension of the physical and chemical survey of the national coal resources. The proposals were approved by the Committee of the Privy Council, and the necessary financial provision was made in the estimates of the Department for the year 1924-25.

While of the opinion that a very considerable increase in the work of the Board was desirable on scientific and technical grounds, and would be fully justified by the value of the results likely to be obtained, the Council were unable, at that stage, to recommend more than the minimum expansion necessary to prevent the value of the work already carried out from being lost. They had received instructions to restrict as closely as possible the provision to be taken in the annual estimates.

In June, 1924, the Secretary for Mines urged the desirability of a further expansion of the work of the Board as part of the Government plans for dealing with the general problems of industrial unemployment, and his suggestions were referred to the Council for their recommendations. The problem thus presented was how to carry on certain work at the maximum speed compatible with obtaining full value for the expenditure, rather than how to avoid loss while keeping expenditure to a minimum. The proposals discussed with the Secretary for Mines were twofold. In the first place it was proposed that the Board should undertake to test at the public cost any promising plant or process for the low-temperature carbonization of coal. It was considered that such tests would not only furnish information of value to the Government, but might expedite the development of a successful process or processes for low-temperature carbonization. The tests, if carried out by the Government, would best be conducted by the Director of Fuel Research and his staff, provided their cost was not allowed to absorb funds already available for the research work of the Board. It was also considered that they should be made under definite conditions.*

It was further proposed that the physical and chemical survey of the national coal resources should be pressed forward at the maximum speed compatible with obtaining proper value for the expenditure. The work of the survey consists in ascertaining the properties of the coal available, in determining the purposes for which each variety is best suited, and in undertaking, where necessary, researches required for the development of new methods of treatment of particular coals, adapted to their nature and to the local conditions. The work is thus divided into (*a*) local investigations in the coalfields, best conducted with the assistance of local committees working under the Fuel Research Board; (*b*) more general investigations into the properties and methods of treatment of coal; and (*c*) investigations on a commercial scale to ascertain the suitability of a given coal for a particular purpose. The speed at which the work can be carried out is obviously limited by the number of competent and trained workers available. For the immediate future this must be the governing factor. Committees will ultimately be required in all the coalfields, but the necessity for recruiting and training the field staff will prevent the establishment of all of them to-day. The Council consider that a sum of from £20,000 to £30,000 per annum, in addition to the present expenditure of the Board, would be fully justified for the various purposes outlined, and they are glad to learn that provision of this order has been authorized on their recommendation for inclusion in future estimates.

In view of the increasing public interest in its work, it is thought well to restate shortly the problem before the Board. It is to secure the more economical use and development of the natural fuel resources of the country and of the Empire, and, by abating the smoke nuisance, to promote the greater health, comfort, and convenience of the community. This problem is many-sided. Its solution necessitates a far more complete knowledge of the available resources than we possess at present, and a study of the means by which the various types of available fuels can best be utilized for the many different purposes for which fuel is required. The most important fuel is coal, and its relative importance is even greater in this country than elsewhere. Coal is utilized by burning it in its raw state in domestic grates or for industrial purposes. The industrial purposes include the heating of furnaces for the metallurgical, ceramic, and other industries, or of boilers for the production of steam, most of which is used in turn for the production of mechanical power. Coal is also used in carbonization processes which convert it into gas, coke, and tars or oils, with or without the recovery of bye-products useful for purposes other than fuel. The gas and oils are more valuable as fuels than the raw coal, owing to the ease with which their combustion can be controlled and with which they can be handled; while the coke, according to the characteristics it exhibits, is useful for a variety of different purposes. In iron and steel manufacture—*e.g.*, in blast furnaces—a definite kind of coke is required which will possess sufficient physical strength, and will not only provide the required heat by its combustion, but also take part in the chemical reactions necessary for the manufacturing process.

Low-temperature carbonization of coal is attractive, since it produces both smokeless solid fuel useful for domestic and industrial purposes, and a supply of motor spirit and of liquid fuel needed for the navy and mercantile marine. It would not be a specific for all troubles even if it could be profitably adopted for the 40 million tons of coal annually used in domestic fireplaces. Owing to the variation in the coals available, and in the local conditions, a number of different processes will possibly have to be devised before success on a national scale is achieved. It is certain that no single process has yet become established which would be suitable for application on a national scale. Before it would be feasible to prohibit the use of raw coal in our homes, it is therefore necessary to find a process and a type of plant—or a number of processes and types of plant—which, collectively, would pay their way when the raw coal is purchased at approximately the same price as coal now sold for household or other general purposes.

* The conditions under which the Department are prepared to undertake these tests were set forth in the "Journal" for Sept. 3 last, p. 747.

But, apart from this, a greater knowledge of our coals and their behaviour when subjected to various forms of treatment will assist in the solution of many manufacturing problems. In blast furnace practice, modification in the type of fuel may ultimately affect profoundly the amount that has to be used, while special treatment of coals, hitherto considered unsuitable for the manufacture of metallurgical coke, may in the meantime yield important savings. The Gas Regulation Act of 1920, which was based on the work of the Fuel Research Board, has already enabled the gas manager to effect substantial savings. Further knowledge may quite possibly indicate methods, other than the carbonization of coal, by which liquid fuels for the navy and mercantile marine, and for aeroplanes and motor cars, can be obtained.

Meantime much can be done, and must be done, to prevent waste and diminish the smoke evil. Proper fuel control in industrial works would have considerable effect in this direction, and, without it, the advantages of the better fuel which research may provide would be largely nugatory

The Council consider that the work of the Board, described in some detail in the Summary which follows, is of the greatest value and importance, and welcome the expansion of its operations which has just been approved.

SUMMARY OF THE WORK OF THE BOARD.

The general work of the Fuel Research Board has continued steadily on the lines indicated in previous reports. The recent appointment of an Assistant Director of Research and a small increase in the staff will enable progress to be expedited, and will make possible the publication at an early date of reports of work already done, the preparation of which has been delayed by pressure of work on the staff. The Board propose in future to prepare an annual report giving a general account of the work in hand during the year. It is felt that this will assist those interested in keeping touch with the Board's activities, by presenting a progress report of work which is still too incomplete for the publication of a full report. The more important work in hand is dealt with briefly in the following paragraphs.

Physical and Chemical Survey of the National Coal Resources.—The object of the physical and chemical survey is to collect data regarding the characteristics of the various coal seams, with a view to their utilization to the best advantage. There are few such data available, and they are badly needed. Apart from determining the uses for which the various coals are suited, the information gained also indicates the directions in which investigation as to methods of preparation and utilization is most required with a view to avoiding waste. The survey thus reacts on all the activities of the Board.

The Board considered that the actual work in the coalfields would best be carried out by means of local committees, the personnel of which included colliery owners, managers, consumers, and representatives of the Board and of the Geological Survey. By this means it was hoped to obtain the sympathetic co-operation of the owners and managers, without which the work could not be carried on. The result has realized the most sanguine expectations; and the co-operation which has been so freely given represents a great contribution to the work.

The first committee was set up to deal with the Lancashire and Cheshire area in co-operation with the Lancashire and Cheshire Coal Research Association. It has now been at work for over two years, and it has examined in the laboratory five seams in this area—viz., the Arley Seam, the Ravine Seam, the Smith Mine, the Wigan 4 ft., and the King Mine. The next to be started will be the Mountain Mine. A report on the Arley Seam is in the Press, and is complementary to the report entitled "Steaming of Wigan Arley Coal in Vertical Gas Retorts," which has been published during the year.* A report on the Ravine Seam is nearing completion. While the examination of the five seams mentioned is practically complete so far as laboratory work is concerned, large-scale work on several of these is still required. A committee for the South Yorkshire area was formed early in 1923, and is now making good progress with a study of the Parkgate Seam. Both committees are studying methods of washing coal and preparing it for the market; and it seems probable that this will expand into a general investigation by the Board.

The practical value of this work is illustrated by the case of a seam whose usefulness for producing metallurgical coke was seriously diminished by its high sulphur content. It was found that almost the whole of this sulphur was contained in a narrow band of the coal; this band is now discarded by certain of the collieries, and the coal raised is of low average sulphur content.

Inquiries are proceeding with a view to forming further committees, and it is hoped that one will be established shortly in Scotland, and be followed by others. One difficulty which militates against a rapid extension of the survey is the scarcity of suitably trained personnel. The chief assistant in each field should be familiar with the geology of the coalfield and possess some practical experience of coal-mining. He must also be up to date in the chemistry of coal and in methods of analysis, and have some knowledge of the modern processes for purifying coal and for its utilization. A knowledge of the requirements of the district is also an advantage.

The work of the Sampling and Analysis of Coal Committee is of great importance to the survey, as it is only uniformity of method in the laboratory examination of coal that enables the results obtained to be compared. A report on Methods of Analysis was published in November, 1923.* The recommendations made have been adopted by the Board for their work, and by the Committee appointed by the Institution of Civil Engineers on standardized forms of report for both commercial and scientific tests of all types of prime movers which use fuel. It is hoped that they will be generally adopted by those interested in British coals. Considerable interest has been shown in France and Sweden, and a representative from Sweden has visited the Director to discuss generally whether it would be possible to arrive at some international agreement as to methods of commercial sampling and analysis of coal.

The Committee are now dealing with the difficult question of sampling, and are receiving much valuable information from big consumers of coal as to the methods they adopt. It is hoped that it may be possible shortly to publish recommendations dealing with the following types of sampling:

(*a*) Sampling the seam *in situ*.

(*b*) Sampling a consignment for special tests, such as boiler trials, &c.

(*c*) Commercial sampling.

High-Temperature Carbonization.—During the year a report has been published on large-scale tests of Wigan Arley coal in vertical retorts, involving the carbonization of several hundred tons of the coal. Similar reports on tests of Holmside (Durham) coal and a Welsh gas coal are in an advanced stage of preparation. The study of these coals may be considered as part of the work in connection with the physical and chemical survey of the national coal resources, and has been undertaken in advance of the actual survey of the respective coalfields, owing to special circumstances. The study of the Holmside coal will contain a comparison of the behaviour of the coal in continuous vertical retorts and in intermittent inclined retorts, especially as regards the production of a gas of maximum calorific value.

Since the completion of that work the retorts have been utilized mainly for the study of phenomena connected with the working of the retorts themselves, rather than for experiments on the behaviour of the coal. This work has included (i.) the investigation of the effect of the admission of a small quantity of air to the base of the retort; (ii.) explorations of the temperature within the coal charge; and (iii.) the investigation of the effect of injecting a small quantity of gas oil into the charge with a view to raising the calorific value of the gas produced. The results of (iii.) so far obtained indicate that this is a useful method of increasing the flexibility of working these retorts.

In addition to the experimental work mentioned, tests have also been made—at the request of West's Gas Improvement Co., Ltd., and of the Municipality of Prague—on the behaviour of a Czecho-Slovakian coal in this type of retort. The Prague Municipality were contemplating placing a large contract for gas-works in this country, and they asked for these tests in order to see whether it would be possible to obtain good yields in this type of retort from the coals available.

Low-Temperature Carbonization.—Work has continued during the year on the lines mentioned in last year's report—namely, breaking down a suitable blend of coals in a disintegrator, heating the mixture to a temperature just below the decomposition point, and briquetting the heated coal under pressure without added binder, and then carbonizing in a simple continuous vertical retort of a type somewhat similar to those used in the Scottish shale industry. The progress has been somewhat disappointing, but many valuable data have been obtained. The temperature at which indications of decomposition first appear in the assay apparatus used at the Fuel Research Station† is about 350° C.; in this apparatus the coal lies quiescent in a still atmosphere while it is heated. It has recently been found that, when the coal is heated in a current of hot inert gas, signs of decomposition appear at much lower temperatures—viz., about 220° C. Strong briquettes were made in the laboratory on a small scale from coal heated to about 340° C. with a pressure of 2 tons per sq. in.; but attempts to repeat this on a works scale failed, possibly owing to the first products of decomposition being carried off in the heater when this temperature was approached. The resulting briquettes possessed little or no strength. The briquettes formed at a lower temperature were more satisfactory, but the amount of breeze formed in the retorts during carbonization is excessive, and this difficulty has not yet been overcome. Experiments are also in hand to develop a rotary type of press for briquetting coal under pressure.

In accordance with the general policy of the Board, close touch has been maintained as far as possible with all the processes for low-temperature carbonization being developed by private individuals and firms, most of whom have kept the Director fully informed of the progress made, and have welcomed visits of the Board's staff to their plant.

Trials have been carried out with the Lessing process (originally designed for the separation of the pitch from gas tars) with a view to the separation of low-temperature tar into light spirit, heavy oils, and pitch. These experiments are very promising, and the heavy oil obtained is miscible in all proportions with fuel oils from natural petroleum. A preliminary examination of oil shale from Somerset has been carried out at the request of the Director of the Geological Survey. These shales have attracted consider-

* See "JOURNAL" for Nov. 7, 1923, p. 378.

* See "JOURNAL," for Dec. 5, 1923, p. 638.

† See "JOURNAL" for March 23, 1921, p. 740.

able attention lately in the Press, but many of the claims made appear to be exaggerated.

Boiler Tests, &c.—Further work has been done with a view to exploring the advantages and disadvantages of the various types of carbon-dioxide recorders used in the boiler-house. The work is reaching a stage when a report could be issued dealing with the subject on broad lines. Attention is being given to the possibilities of doing effective work in connection with the burning of coke under steam-boilers.

Production of Oil from Coal by Methods other than Carbonization.—The question of the hydrogenation of oils and coals is being closely watched. The Board are in touch with other bodies interested in the commercial development of such processes, and are carrying out some fundamental work on the subject.

Domestic Heating.—Dr. Margaret Fishenden has continued her work on the physical and chemical factors which determine comfort conditions in living rooms, and has submitted a report entitled "A Comparison of the Cost of Different Methods of Artificial Heating on the Basis of Warmth and Comfort," which is being prepared for publication.

The Manchester Air Pollution Advisory Board, under the chairmanship of Mr. E. D. Simon, M.P., have for the last seven years been carrying out work on the domestic coal fire. They have been specially investigating the products of combustion evolved, and have found that a considerable proportion of the coal remained incompletely consumed, and that this represented from 10 to 25 p.ct. of the total heat energy in the coal; the chief unconsumed products being carbon monoxide, methane, and unsaturated hydrocarbons. The soot evolved represented only 2 to 3 p.ct. of the original heat value of the coal—a value which is considerably lower than that found by Cohen and Ruston in their work on the coal fire.

The Manchester Air Pollution Advisory Board have now come to the conclusion that this work should be taken over by the Fuel Research Board, who are in agreement with this view, and have arranged for the work to be continued in London by Dr. Margaret Fishenden.

The Summary also mentions the work done on the question of power alcohol, and concludes with a few notes on the exhibits of the Board at the British Empire Exhibition.

SCOTTISH JUNIOR GAS ASSOCIATION.

(WESTERN DISTRICT.)

Visit to Gothic Works of Messrs. Thomas Glover & Co., Ltd., and R. & A. Main, Ltd.

On Tuesday of last week, representatives of the Scottish Junior Gas Association (Western District), under the leadership of Mr. Walker, the President, and Mr. Murray, the Secretary, concluded a visit to London with a tour of the Gothic Works, Edmonton—the London factory of Messrs. Thomas Glover and R. & A. Main.

Upon arriving at the works, the representatives were greeted by members of the management and works staff, and introduced by them to the firms' oldest employee, Mr. J. Brown. Mr. Brown, of whom the firms are justly proud, first entered the employ of Messrs. Thomas Glover & Co. in the early part of 1859, when the patent on the original dry meter had only just expired, and such things as slot meters or gas cookers were undreamt of. He has thus been in the service of the one firm for close on 66 years. It may be added that Mr. Brown still enjoys good health in spite of his years, and, though he has been frequently offered a pension by the Directors, he prefers to work in the factory which he has seen grow from a small shop in Suffolk Street, Clerkenwell, to the huge works covering over 8 acres of ground at Edmonton, with branches scattered throughout Great Britain.

A photograph was then taken of the visitors, to commemorate the visit; Mr. Walker and his colleagues insisting that Mr. Brown should be included in it. He will therefore be seen in the front row, the third figure from the right-hand side.

After being photographed, the visitors were assembled into parties and were conducted over the 26 shops and departments comprising the Gothic Works. They were greatly impressed with the size of the meter shop—the largest of its kind in the world—and were interested to note the enormous quantity of gas used for industrial purposes throughout the factory. This prompted the remark from one of them that he would rather like the privilege of numbering Messrs. Glover and Main, Ltd., among his consumers. In the stove department the visitors had evidence of the great growth in output achieved by the firm during recent years in the large and varied extensions which have lately been carried out to this department.

After touring the factory, the parties were shown over the Middlesex County Council gas meter testing station, by the courtesy of the Inspector, Mr. W. E. Barney. This brought the visit to a conclusion, and the parties then joined together for lunch.

SCOTTISH JUNIORS AT THE GOTHIC WORKS, EDMONTON.

Gas Oil.—The "Petroleum Times" market report states that from the 30th ult. the price of gas oil has been reduced by ¼d. per gallon. The current price is therefore 5¼d. per gallon, net and naked, *ex* wharf.

The Capital Invested in Colliery Undertakings.—The following is quoted from the Presidential Address of Dr. J. S. Haldane, F.R.S., delivered at the annual general meeting of the Institution of Mining Engineers held last week: "The capital sum in use, and at the same time at risk, in the colliery undertakings managed by members of the Institution of Mining Engineers is enormous. If, through inefficient management or other causes, these undertakings ceased to pay a reasonable dividend, that capital would be lost. Let us see what this would mean. Some of the undertakings might be able to struggle on for a time, leading a hand-to-mouth life, with no credit to fall back on for the cost of necessary replacements or improvements; but this could not last long. Meanwhile a great many shareholders, rich and poor, would have lost all benefit from their savings. To the poor shareholders regarded as individuals this would be a calamity; to the rich it might be a personal relief from endless cares and responsibilities which accompany the control of much wealth, but many persons dependent on that wealth for their employment would suffer. What I wish to emphasize, however, is that the country, and on a wider view other countries, too, would have lost the capital. . . . One of the values for which the Institution stands is the capital or credit of the coal-mining undertakings in this country."

WALES AND MONMOUTHSHIRE JUNIOR GAS ASSOCIATION.

OPENING MEETING.

The first Meeting of the Association for the 1924-25 session was held at Cardiff on Saturday, Oct. 4. Members gathered at the Grangetown Gas-Works at 3 p.m., when, by the courtesy of the Directors of the Cardiff Gas Light and Coke Company, and under the guidance of Mr. H. D. Madden, M.Inst.C.E. (Engineer and Manager), Mr. R. J. Auckland (Secretary), and the works staff, a tour of inspection of the works was made. Accompanying the party were Mr. W. Stanford (Newport), Mr. D. Muir (Pontypridd), and Mr. J. E. Mogford. No effort was spared to make the visitors fully acquainted with the processes of gas manufacture and distribution adopted at this up-to-date works; and the members of the Association, by the inquiries put to their guides, plainly showed their interest. Expressions of delight were made on every hand; and the visit is set down as an educational treat. Following the inspection, the members boarded special tram cars for the journey to the offices of the Company at Bute Terrace, where tea was provided by the Directors of the Company.

Mr. H. D. Madden, on behalf of the Directors of the Company, welcomed the Association to Cardiff, and in a few brief remarks urged the necessity of the junior members of the industry applying themselves to the Education Scheme.

On the proposition of Mr. T. A. Canning (Newport), seconded by Mr. T. B. Armitage (Swansea), a hearty vote of thanks was accorded the Directors of the Cardiff Gas Light and Coke Company for their kindness in affording facilities for the visit and providing tea, and to Mr. H. D. Madden, Mr. R. J. Auckland, Mr. Boardman, Mr. Bateman, and members of the works staff who had guided the parties.

At the subsequent meeting, under the presidency of Mr. T. A. Canning, letters regretting inability to attend, and congratulating the Association upon a successful year and expressing best wishes for the future, were read from Mr. J. H. Canning (Newport), Mr. G. Clarry (Bournemouth), Mr. W. H. Johns (Swansea), Mr. W. Clarke Jackson (Neath), Mr. J. Presser Jones (Caerphilly), and Mr. O. Thomas (Pentre).

Mr. T. A. Canning then asked Mr. Armitage to accept the Association's Certificate, as a token of their esteem for his services. Mr. Armitage as their President had guided them through the most difficult period—their first year—and had carried out his duties with dignity both to himself and the Association.

Mr. Armitage, replying, expressed the pleasure it gave him to accept the Certificate, which he would treasure highly. He had felt proud to be elected as their first President, and his only worry at that time had been "would he be able to please everyone?" His duties, however, had been lightened; for he had found everyone desirous of pleasing him.

The President, rising to induct Mr. B. J. Bell (President-Elect), referred to the latter's sterling work for the Association. When its inception was first mooted, Mr. Bell was early in the field with his support; and when later the Association became an accomplished fact, upon Mr. Bell fell the arduous duties of Secretary. The interests of the Association could not be in better hands, and he asked the members to extend to Mr. Bell the same hearty support they had accorded to him during his term of office.

Mr. B. J. Bell, on taking the chair, expressed appreciation of the honour shown him, and moved that a vote of thanks be accorded to Mr. Canning for his services as President. Mr. Canning came to the chair a well-known, though a young, man; in fact, he thought Mr. Canning must be one of the youngest men who had filled the office of President of an Association such as theirs. He bore a name honoured by all connected with the gas industry; and it gave him the greatest pleasure to present to him the Association's Certificate as a mark of gratitude for his services as President.

Mr. Wood (Pentre) seconded the vote of thanks.

Mr. T. A. Canning, who was received with acclamation, returned thanks, and said that he would continue at all times to take a keen interest in, and support the work of, the Association.

Mr. H. D. Madden, congratulating Mr. Bell upon his election, said the Directors and staff of the Cardiff Gas Light and Coke Company were gratified that the Association had paid Mr. Bell the honour to elect him as their President, and had taken it as a compliment to themselves.

Mr. B. J. Bell then delivered his

PRESIDENTIAL ADDRESS.

My first duty must be to thank the members for the honour they have conferred upon me in electing me President of the Association with which I am proud to have been intimately connected since its inception.

Young as our Association is among British Juniors, it has already provided the means of interchange of thought and experience which was needed, and has wielded an influence in the area covered by our membership. Primarily it has stimulated interest and promoted a spirit of emulation, and an ambition to excel, which have had a direct effect upon our work. This is largely due to the educative character of the meetings and visits provided, which, combined with the expression of opinion in debate, enhances experience, to the undoubted advantage of the undertakings concerned.

Our scattered area presents difficulties in maintaining attendances, though, in spite of geographical disadvantages, it has been possible to secure successful meetings. It has, however, been necessary to minimize travelling expense and inconvenience by selecting different centres during each session, in order that every section may have an opportunity of taking part in at least two of the proceedings. Future programmes will endeavour to provide the same facilities, as it appears undesirable that a definite centre, so convenient in more congested areas, should be fixed.

It must be pointed out, however, that as an Association we are approaching the testing time of vitality. The impetus gained at the inauguration has been sufficient to maintain a most successful organization, but the future demands enthusiasm and tenacity of purpose both individually and as a body, if we are to continue to fill the sphere allocated to us, both in work and influence.

It cannot be denied that during their existence of twenty years the Junior Associations have wielded a great power in the industry, for many of those whose policy has been moulded in the debates now hold administrative office, where the assimilated knowledge has been utilized for the benefit of their undertakings. Many of these gentlemen retain their interest in our work; certainly every one of them would acknowledge the value of the benefits they received by this means in their early struggles for a career. Surely then there is sufficient inducement to assure the continuity of the beneficent work of encouragement, by lectures, visits, and informal debates, of that latent ability which, when developed, will assure the continued progress of the gas industry.

EDUCATION.

To-day a youth enters the industry thoroughly equipped by a long school life covering an exhaustive curriculum. He now finds at his disposal a scheme of specialized education backed by an excellent Technical Press, the publications of which are admirably suited to the student. Those who aspire to the highest sphere the industry can offer have within their possibility a diploma which in time will rank equally with the professional examinations. The Institution of Gas Engineers have called for a high standard of qualifications, but one which, by an ascending scale of examinations, can be attained by anyone having sufficient energy and purpose to accomplish the desired end.

Most of the difficulties experienced in making the scheme applicable are centred in the fact that men who have reached an age when it is hardly expected that they will be interested in examinations are desirous of taking the tests. There is no consideration necessary, or amendment of the regulations desirable, for the younger generation. The scheme stands as a definite provision, long overdue; its demands being so reasonable, yet inclusive, that it is a credit to those who so thoroughly considered the question.

To those who ask for information regarding the rewards of such prolonged study, it may be mentioned that the Councils of Junior Associations and their Joint Council have for years considered the matter, until the fruition of their idea has culminated in the Institution scheme which has been evolved by those who, realizing their own limited opportunities, determined that no such difficulties should debar future aspirants. The call for education emanated from within the industry itself. Employing boards and committees did not institute the scheme, but they will speedily realize its hall-mark. At present, education within the industry is being thrust at those who should take advantage of such facilities; but the time will speedily come when the industry will demand to know what response has been made to these efforts. Such considerations should be sufficient incentive, leaving the future for determination of value.

The arrangement whereby a candidate for the final honour appears before the examiners personally at the conclusion of his studies is a welcome innovation. There is no better training ground for *viva voce* examinations than our own debates, which give opportunities for concise expression of opinion, and develop personality—an important factor in complete education.

CONSERVATION AND DEVELOPMENT.

Proceeding from an introspection, the consideration of future possibilities claims attention. After years of unremunerative effort, due to war restrictions, gas authorities are at last able to renew their forward policy; and, in spite of general trade depression, marked progress is being made everywhere. The abnormal activity in building is due to the demand for accommodation. Every centre is extending its boundaries, with the result that the people are requiring gas supply in new and ever-increasing areas. To meet these conditions, new mains have to be laid, involving additional expenditure. Furthermore, the erection of terrace property has ceased, and longer distances have to be covered to secure consumption. The actual number of meters per mile of main is less than formerly; and this, combined with the gradual though slow completion of estate development, means that the heavy load factor ultimately to be expected cannot be realized until building schemes are actually finished.

It is therefore important to concentrate on the conservation of existing loads, and develop the use of gas in those districts of our area where no additional outlay is necessary. By exerting primary effort in this direction, present consumers can be retained and additional gas sales effected, which will do more to realize low rates per therm than any other activity. An increased consumption is more difficult to secure in such districts, and therefore it is

more creditable from a sales point of view to have additional output from this source.

Such properties as those under consideration present particular difficulties, as they were carcassed at a time when it was thought only necessary to provide an installation suitable for illuminating purposes; yet those houses, with their inconvenient construction, are the particular market for geysers, circulators, and fires. Not only so, but the fittings are generally obsolete, fixed in absurd positions, and unsatisfactorily altered to take incandescent burners of the cheapest type. Substitution is considered without hesitation where alterations or renovations are under review, without any regard to modern methods of gas lighting, which would justify the claims for illumination by gas.

In such circumstances, concentrated sales effort is very necessary to obtain the desired results. Probably, too, inducements beyond ordinary fitting trading terms have to be adopted to emphasize the service offered; but this is not so expensive as new district work. A great deal of opposition can be overcome by a liberal interpretation of the "fixed free" condition for appliances, so that a supply pipe to (say) a cooker is run of adequate size, and in such a position that further supplies for fires may be taken off it without inconvenience later. In other words, the shortest run is not the most economical where possibilities are taken into account.

Brick-built coal-fired wash-boilers in this type of house property should be substituted by gas boilers; but the demolition of brickwork and repairs constitute a charge which at present it is not possible to undertake. When saturation point in other directions is approached, the day load of the household wash will be sought out in spite of such obstacles.

Most undertakings include the service of a burner maintenance scheme; and it may be thought that this should be sufficient to deal with the lighting problem in the districts under review. It is extremely doubtful, however, whether these schemes appeal to any extent to the average consumer. The proportion taking advantage of the service is not great, whether a small flat rate per burner is charged, or an inclusive price allowing for the replacement of mantles. Conditions have improved since the introduction of maintenance contracts; the design of burners with adjusters being better, and the abolition of the illuminating standard practically eliminating the "sooting-up" previously so prevalent with slight pressure fluctuations.

Again there are long periods in the year when artificial lighting is seldom, if ever, required, owing to the time alterations—particularly as shops and business premises are closing earlier. Consequently visits made under the terms of an annual contract are unnecessary, and are merely tolerated as being an attendance which has to be paid for. On the other hand, except under extraordinary conditions, burners which are sold in our showrooms to-day do not require constant attention, and it is unwise to create an impression detrimental to our business. Burners do require occasional cleaning; but the replacement of a mantle at a cost of a few coppers is as easy as fitting a new electric bulb, and may well be left to the consumers.

Experience has shown that one gratuitous visit to consumers' premises to give attention to the lighting installation was well received, and the orders obtained by the attendant more than paid for the time expended. A development of this, combined with the sale of selected burners at a small margin of profit, and making necessary alterations at low cost, will promote efficiency and make considerable difference to the problem.

Not only lighting, but the general use of gas as a fuel is retarded by antiquated appliances. In this connection it is a surprise to find what a large number of appliances are actually fitted; the first returns from one district showed that 108 consumers used 707 incandescent burners, 97 cookers, 11 geysers, 77 fires, 7 wash-boilers, and 13 radiators, as well as gas grillers and boiling rings. The proportion is probably less throughout the area as a whole; but if the real business of the industry is to sell gas, the appliances at all times must be in a condition to give efficient service and satisfaction to the user. Unfortunately it is the few who complain. The majority either cease using the offending appliance or at best use it occasionally under silent protest, assuming that the condition is inevitable, whereas, if we were notified, the trouble would be located, to mutual advantage. Conservation must include the continuity of use, and this can only be accomplished by the maintenance in good working order of every gas factor.

MAINTENANCE.

Till recently, maintenance has been considered in connection with lighting only; and incandescent burners with their small unit consumption have been selected for special attention. The total amount of gas used for lighting is a small proportion of the load factor, and therefore it may be argued that, if the maintenance of the lesser consumption necessitates maintenance of burners, the conservation of the enormous sale for other purposes demands that maintenance of all appliances should have a prominent place in future policy.

Considerable interest is displayed in the Glasgow experiment in this direction; and it is feasible to believe that—at least in a modified form—there will be widespread extension of the idea. We are aware that many authorities maintain appliances so long as they are their own property, but it is not usual to inspect after the purchase is completed. Whoever is the owner, the undertaking must be assured that the consumers are using as much gas as they need, and that they are burning that gas to their satisfaction, and to the benefit of the works. Low price is important, but it is not vital for domestic use, so that if the difference of a few points in the price is the only bar, consumers will readily accept a service which will not only give them satisfaction and freedom from trouble, but will speedily bring the benefits of increased average consumption, and justify expenditure.

ADVERTISING.

Unlike commercial firms whose expenditure can be allocated to periodicals circulating the whole country, with the probability that returns are favourably influenced, the gas undertaking is restricted to so confined an area that individual broadcast advertising may be considered as a dissipation of effort. Newspaper advertisement may be supplemented by other schemes; but its excessive cost, as well as other considerations, debars it from being anything more than an adjunct to more important methods of publicity. Even when undertaken, it should be under conditions that constitute some direct appeal or announcement, rather than an invitation to use more gas, however well displayed.

Advertisement canvassers are ready to assure firms of the value of a notice in the newspaper, although it is also admitted that the actual business cannot be traced to its source. The latter fact is correct, for whether the lay-out or the matter has been at fault, only one direct inquiry has ever been received, though on two occasions popular vote has placed the Cardiff Gas Company's advertisements in the premier position. It is therefore difficult to draw any more definite conclusions than that such propaganda may create an "atmosphere" among consumers, which is favourabe to other definite work. It is necessary to build upon this impression; and the fact may be clearly defined by stating that where the customers, both secured and potential, are known, the best results will be obtained by direct methods rather than general suggestion.

THE SHOWROOM AND SALES.

The industry's premier attractive force is the showroom window, especially in busy thoroughfares; yet, after providing expensive fronts and fittings, it is sometimes deemed sufficient merely to change the appliances shown from time to time. Except when in actual want of some particular appliance, the passer by seldom examines the display.

While it is advisable to encourage contrasts by an ordinary display, it should be alternated by special windows which attract immediate notice. It must be admitted that model rooms have lost their drawing power, and should be regarded as an obsolete method of window dressing—although pretty effects can be obtained, they are not commercially successful. On the other hand, no opportunity should be lost in using current local events to provide a theme to build upon. Numerous instances could be quoted and details mentioned of simple ideas which have been beneficial—from a novelty which caused crowds of such dimensions as to secure a warning from the police for obstruction, to another display where gas fires arranged in a somewhat peculiar manner, combined with special notices announcing a further concession, immediately resulted in a direct increase of business.

For display purposes, showcards should be used with care. Small cards neatly printed, announcing facts in a few words or stating a price, are sufficient.

While we know that everything that can be said about gas has been reiterated again and again, there are sufficient words in the language to enable these facts to be stated in different ways. Originality in this is particularly necessary. Is our business so negative that "no dust," "no dirt," "no ashes," should always appear?

It is hardly necessary to mention that the stock, both in variety and quality, is an important item. There is, however, a danger in the multiplicity of patterns which are offered by the various makers. In many cases there is no outstanding feature or advantage in a particular range of appliances; but after a time, the question of replacement of parts looms as a serious problem. Of recent years there has been a decided attempt at interchangeability; but the manufacturers are naturally anxious to improve their designs with a view to assisting the output of their particular factory, and are commendably engaged in investigations with a view to further efficiency.

The industry as a whole is not slow to adopt new ideas which will ultimately promote its own interests, and welcomes anything which will assist its efforts. There is, however, a great difference between laboratory tests and domestic utilization, and also a stage where a slight percentage saved in consumption may be reasonably sacrificed to ease in handling, appearance, or effectiveness. There is a distinct movement towards limitation of patterns, particularly where appliances are supplied under conditions which include replacements over a period, in order that the stock of such parts may be kept within reasonable limits. On the other hand, standardization has been introduced as distinct from mere interchangeability, and it must be remembered that the basis of our business is in a few general appliances—special furnaces, cookers, &c., being the exception.

STANDARDIZATION.

A standard cooker is now on the market. It is intended to be the cooker recommended to undertakings for general adoption, but it is apparent that, without sales efforts equal to those by manufacturing firms for their own products, there will be no general adoption. The industry requires standardization, and there

must be some means of securing it. If, however, a standard appliance merely results in adding more patterns or another range, its usefulness is doubtful, particularly as there have been such radical changes in construction of appliances from time to time, and it does not appear likely that finality has been reached.

As yet there is no agreement upon the scientific construction of hotplate burners; and we have two opinions, each supported by highly trained chemists and physicists, one advocating a correctly drilled ring burner, and the other certifying the superiority of the spreading flame type. In itself this may seem a matter of little importance, easily disposed of by the purchasers. Actually the whole construction of the bars and hotplate cornice depends upon the type of burner used. The sectional hotplate bars cost as many shillings to replace as pence to purchase straight bars, wrought or cast. The general adoption of one or the other type remains a question of policy and actual repair and renewal charges.

The more vital matter is centred in the construction of incandescent burners for illumination. Competition demands a very definite course of action in order to banish from the market burners which are only such in name. A vast proportion of our lighting business is among consumers to whom a cheap burner is an absolute necessity, without any consideration of utility on their part.

It is not within the province of these remarks to deal with the policy to be adopted, as each undertaking will work out its own salvation. Sufficient has been said to show that standardization is not only desirable but an absolute necessity—not interchangeability merely, but dictation after investigation. For this purpose the findings of the Committee must be given undeviating support by the purchasing power of the industry. We know that investigations are often necessarily prolonged, and it is undesirable that the facts elucidated from time to time should be made public; but in order to stimulate interest and gain support, it might be within the range of practicability, to secure the valuable results of research, that district committees should be taken into confidence, not to promote discussion or dissension, but to confirm the findings. Having considered the evidence, they would be bound to confirm by insisting that their undertakings use those appliances which meet with the requirements laid down, and would in this way make any decision of the Standardization Committee a factor which no maker of repute could afford to ignore. No doubt more time would be spent upon each investigation, additional expense also incurred; but can this be a consideration against the fact that the industry would guide the manufacturer by standard requirements?

Such standardization would be standard requirements to be met, and does not necessarily imply that the actual construction of special appliances need be undertaken. Against this it may be argued that there would be a limitation of design which would militate against the consumer, and that there would speedily be a revolt. Practical experience proves that such an objection is without foundation, for any showroom salesman knows that he can, within limits, guide a purchaser to buy, and often a great variety of any type is confusing rather than an advantage. In fact, if one follows advertisement campaigns, it is surprisingly true that, in spite of expense, the particular suggestion made by the announcement seldom influences the public to make specific application for a certain fire, cooker, burner, or mantle; actual experience of other users is a more deciding factor.

INSPECTION OF FITTINGS.

The value of inspection work has been very forcibly brought before the industry by the admirable report submitted to the Board of Trade by Mr. Butterfield; and probably if there were no other considerations than "safety first" methods, the adoption of such suggestions would have benefits.

This is not the time to discuss the subject of accidental gas poisoning, except to say that this is seldom, and the mere inspection of fittings unfortunately will have little influence upon the number of cases. Although such work is not so expensive as other methods already mentioned, it is more or less valueless to the undertaking, and it appears preferable to include such unremunerative charges in a scheme which would ultimately redound to the credit of the undertaking.

Inspection without performance pleases nobody, particularly as there can be no authority to insist upon alterations to private property at the cost of the owner. The result of such an inspection which was undertaken some time ago proved that, as a general rule, the fittings throughout our area were sound; but when necessary taps were tightened and other small requirements given attention. A canvass with recorded results can satisfy us that no glaring case of discreditable work or condition militates against our goodwill. Again, criticism of outfitters' work in the absence of a standard specification would cause resentment and a deadlock which is far from desirable. On the other hand, adequate and permanently satisfactory ventilation should be insisted upon where geysers are fitted, as the proper fitting of flues is so important. Yet for the purpose of executing a cheap job it is not exceptional to find that a perfectly safe and useful adjunct to household convenience becomes a potential danger from the time it is fixed.

SOLID FUEL.

Attention is drawn to Prof. C. V. Boys' method of burning unbroken coke as a domestic fuel, and it is mentioned in his report that it is not realized that the fuel will burn to perfection if used on a firebrick hearth without underdraught. While experimentally it is found that coke will give the good results claimed under such conditions, the trouble involved in making the ordinary householder's grate suitable for the purpose would prevent its general adoption without special provision. It is admitted that in this country it is necessary to provide fireplaces capable of consuming solid fuel. This being so, we may, as purveyors of a smokeless solid fuel, continue to advocate the abolition of smoke with its dangers to public health. There is a very real cause for further investigation which would lead to the provision of an inexpensive adaptation which can readily be placed in existing grates for the purpose. There is no reason why any other solid fuel should be marketed to the detriment of gas coke, when it is possible for the latter to fulfil all the work required, thus making the gas-works the complete suppliers of smokeless fuel, whether solid or gaseous.

DEVELOPMENT.

Mere admonition to use more gas will not influence anyone, but service will promote sales indefinitely. Facilities which place appliances easily within the reach of our patrons, direct advertising on what to instal and how to use it economically, and sound advice based upon experience will do more than anything else to achieve our purpose. Let me quote an American advertisement: "Gas without service is of little use to anyone, but gas with service is a necessity. One is mere vapour, the other fuel."

As servants of public utility authorities we are engaged in an encouraging business absorbing all our energies. There is no dull routine to blunt our activities, no stagnation of thought, but a future which will reveal a demand which members will not be slow to meet.

Many great names are associated with our industry, and to them a great debt is due, and the rank and file have been keen to follow their lead. The foundation of further advances has been built on much unostentatious work, and it is the Junior Associations that will provide men imbued with the spirit of progress to carry on the achievements of the past. If we have a tendency to look upon that past with pride and complacency, we also view the future with equanimity, knowing full well that we are determined by our efforts to play a valiant part in assuring the continued success and advancement of an industry which not only gives us sustenance, but engages our keenest interest and the best service possible within our respective capabilities.

Mr. Hughes (Chepstow), in proposing a vote of thanks to the President, said he had looked forward with keen anticipation to hearing Mr. Bell's address, and he was of the firm opinion that study of it and the application of the policy set forth would be of the greatest interest and assistance to all. It was with great pleasure that he moved a hearty vote of thanks.

Mr. Martin (Merthyr), who seconded, remarked that Mr. Bell had proved himself an acquisition to the Association and to the industry.

Mr. T. A. Canning remarked that Mr. Bell had covered a wide field; and the most ardent critic could express no sentiment other than that the address was an excellent one.

Mr. Mogford said that no association could have had a better address than that which had just been presented to them.

Mr. D. Muir (Pontypridd) congratulated Mr. Bell, and expressed the wish that he would have a successful year of office.

Mr. Bateman (Cardiff) also took the opportunity of congratulating the new President.

Mr. Bell, returning thanks, remarked that in spite of keen competition and the prevalent trade depression, the gas industry was progressing, and its future was bright.

Scottish Junior Gas Association (Western District).—The opening meeting of the new session will take place next Saturday, Oct. 11, at 3 o'clock, in the Royal Technical College, Glasgow. Mr. John M'Isaac will deliver his Presidential Address. The first visit of the session is on Saturday, the 25th inst., to the Glasgow Electric Power Station, Dalmarnock.

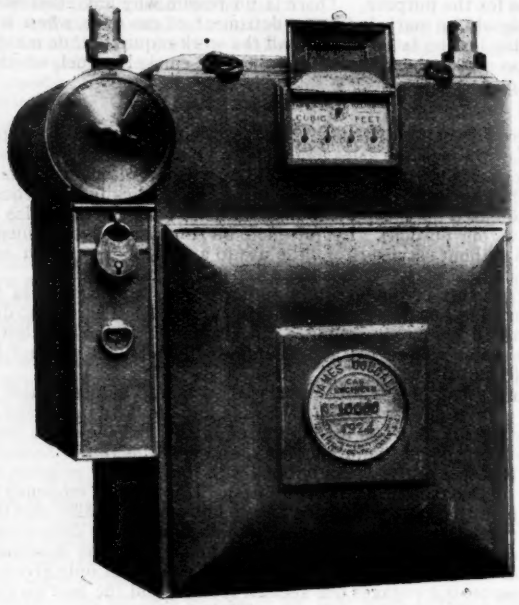
Institution of Heating and Ventilating Engineers.—The winter session, 1924-25, commences on Oct. 14, when at a general meeting at the Caxton Hall, at 7 o'clock, Mr. H. A. Sirzaker will read a paper on "Safety Valves." At the annual general meeting to be held on Feb. 11, 1925, Mr. A. H. Barker, B.A., B.Sc., Wh.Sc., will speak on "Unsettled Questions in Heating and Ventilation."

Chemical Engineering Group.—A useful session is promised for the Chemical Engineering Group (Society of Chemical Industry), under the Chairmanship of Mr. C. S. Garland, B.Sc. The reading of papers at the opening meeting on Thursday, Oct. 23, will be followed by an informal dinner in the Stephenson Room of the Engineers' Club, Coventry Street, W. "Chemical Works Costs" and "Low-Temperature Carbonization" figure among matters to be considered on subsequent occasions.

Yorkshire Junior Gas Association.—The 22nd annual general meeting of the Association will be held on Saturday afternoon, Oct. 18, at 3.15, in the Lecture Room of the Fuel Department of Leeds University. After the election of officers, the new President (Mr. E. Gillett, of Bradford) will be introduced, and Mr. R. E. Gibson (Engineer of the Liverpool Gas Company) will address the meeting. Afterwards there is to be an adjournment to the Victory Hotel, Briggate, for tea and a smoking concert.

A NEW PREPAYMENT METER.

The business of the Chiswick Meter Works was started at Strand-on-the-Green, Chiswick, in March, 1922, to supply and repair gas meters; and so rapid were the strides made that an additional works was acquired at Kew Green in December, 1923, the latter premises being entirely devoted to the making of new meters. Seventy hands are now employed, capable of dealing with 350 repaired meters per week, in addition to making and supplying 150 new meters weekly.



Mr. James Dougall has brought out a new automatic meter, which is ready for the market. The features claimed for the "Dougall Automatic Meter" are:

1. Front attachment, with a new type of long-range change plate, in black relieved with silver lettering, which can be more easily read than the old type of plate—the plate having a range of from 5 to 50 c.ft. for pennies, and *pro rata* for other coins.
2. Extreme simplicity with which the price can be altered after the company's seal has been broken. It is only necessary to release a catch and slide the plate round, without having to remove it from the meter. In altering the price of gas, the fitter has no access to the cash box.
3. The valve positively opens at 4 c.ft.
4. Gas cannot be obtained without a coin. In other words, the meter cannot be "pumped," owing to the introduction of a shutter which effectually prevents the operation of the meter by the introduction of a piece of wire or any other instrument. This makes the meter absolutely fraud-proof.
5. The valve is conveniently placed outside the meter, is easily accessible, and can be supplied with a loose inspection plate if desired, thus enabling a new washer to be fitted at any time *in situ*, without the use of a soldering iron.
6. The attachment is very strong and durable, being made throughout of best-quality brass.

Pitch Cancer.

An investigation which has been carried out at the Lyons Bacteriological Institute by M. Poty once more draws attention to a condition of affairs which, says the "Chemical Trade Journal," has often been the subject of comment—namely, the comparative immunity of the workers in the French tar and pitch industries from the epitheliomatous cancer which is too often met with in this country. It seems that during the five years 1918 to 1922 inclusive only four definite cases of pitch cancer were encountered—two each in the Paris district and in the Lyons area. As compared with this, out of 2500 workers in the South Wales patent fuel industry examined by Dr. Legge (Chief Factory Medical Officer) in the two-and-a-half years to June, 1922, no fewer than 49 were found to be, or to have been, affected by ulcerous growths requiring surgical intervention. In "Chimie et Industrie," Prof. P. Courmont expresses the opinion that it is to some difference in the nature of French coal as compared with British that the cause of the varying conditions in the two countries must be mainly ascribed. It is true that the number of workers in the French tar distillation and patent fuel industries is not nearly as great as in this country, but to counterbalance this, conditions as to medical control and notification are not nearly so stringent over there as is the case here. Further, the fact that the average Frenchman is less liable to be attacked by carcinomous conditions in general than the Englishman or Belgian is held to be insufficient to account for the great difference observed.

THE CONSTITUTION, ELECTION, AND TRAINING OF DIRECTORS.

By a Gas Engineer.

Daniel is still unrepentant both as regards his anonymity and his final article on "The Present Position of the Gas Industry." Without the cloak of anonymity he would indeed have been in the lion's den; and what would have been really serious would have been that the arguments used would soon be lost sight of in the maze of personalities. Except when used for the purpose of attacking individuals or to promote private ends, anonymity is not only justified, but even necessary, if we are to discuss systems of management from a general point of view and in the interests of all sections.

The point mainly criticized both by Mr. Brearley and the Editor of the "Journal" is as to the advisability of electing a retiring official to a directorship; and in passing it may be as well to assure Mr. Brearley that the writer has never served under a board containing a promoted official, and has not himself reached the stage of such service, so that his remarks have no personal bias.

When reading Mr. Brearley's article, it must be borne in mind that the original statement did not suggest that gas engineers should be excluded from sitting on boards of directors of gas companies, but only that they should not upon retirement from their official position be elected to the board of the company in whose service they are.

As an example of "loose thinking," Mr. Brearley's selection of examples in support of his argument could hardly be bettered. Presumably he has chosen them because they are household names in the gas profession; and if the adoption of the principle enunciated by "Gas Engineer" meant the elimination of their services to the gas industry, one could hardly help but condemn it. But does it? The answer is emphatically "No." Mr. Milne Watson and Dr. Charles Carpenter were not elected to their present positions as supreme heads of the two largest gas companies in the country because owing to long service they wished to be relieved of the responsibilities of office and it was felt that it would be a gracious compliment to elect them as directors, but because those responsible were assured that by raising them to their present positions they would utilize their abilities to the greater advantage of the respective companies and the industry generally. Whatever their nominal title may be, they are, in effect, still the two greatest gas officials in the country; and if the members of the gas industry were asked to name in order of merit its officials, these two would undoubtedly head the list. Of the other names mentioned by Mr. Brearley, most are those of consultants of very high standing who do not owe their positions as directors on the many companies which they serve to the fact that they have held official positions under those particular companies.

When considering the organization of the management of any provincial gas company, it is difficult for an outsider to realize the close personal touch between a successful official and his directors, and the longer the service the closer the relationship, as they are probably brought together in the normal life of the town in which they all live and have their interests. In fact, in very many cases the board meetings are hardly more than formal, as any important business is talked over and practically decided in individual meetings during the intervening periods.

Take such a case as this—where the manager has run the concern for between twenty and thirty years apparently successfully, earning normal dividends, keeping the price of gas reasonably low, and working without friction either with his subordinates or with his directors. This man, who has grown grey in the service of the company, and to whom the Directors feel that they owe a debt of gratitude, wishes to retire, so he is elected to the board, and his successor is appointed. The new man is young, energetic, and full of enthusiasm. He is anxious to increase the prosperity of the company, so making a name for himself, as his predecessor did a generation before. He can only do so by improving the existing organization, and is obviously handicapped by the fact that any improvement implies criticism of his predecessor and present director. Where the suggested improvement is a matter of opinion (and there are many such) whose voice is going to carry the day—the man who has made his name and who is the personal friend of the members of the board, or the young and unknown man who has still to earn their confidence? The answer is obvious; and as the example is quite fair, and typical of what has happened, or might happen, in the great proportion of provincial companies, the writer maintains that on these grounds alone the risk should be avoided.

Mr. Brearley states in one part of his article that engineers have no time to educate their directors, and in another part complains that half their time is taken up in so doing. He also states that it is no part of the duty of the "B.C.G.A." to help with the work; but in this he is not supported by the Editor of the "Journal," who states that the Association have done good work in this respect. The writer agrees with the Editor, and there is no doubt that the "B.C.G.A.," supported by the Technical Press, could do much more work in the future than has been done in the past.

As for the education of members of Corporation Gas Committees, it is, generally speaking, an impossible task; and what is re-

quired of an official is tact and tactics. A very successful corporation gas engineer once told the writer that when he wanted to get anything specially through a corporation gas committee he arranged for very long agenda, and placed the particular item about a third of the way down. That was tactics.

A man of note, having written a criticism of an important work, added as a footnote "Please preface each of these criticisms with the words 'I think.'" The writer of the articles, never having claimed omniscience, takes it for granted that his readers will follow that advice, though realizing that to disagree is not necessarily to be disagreeable; indeed, the airing of diverse opinions is good for any subject. He might add that, while assuming full responsibility for the views expressed, he has heard them many times stated where he has foregathered with his fellow engineers throughout the country. Mr. Brearley acknowledges that such opinions are heard in "private conversations;" and, after all, a man's private opinions are generally his true ones, and as the vast majority of engineers have the good of the industry at heart, their private opinions should carry weight. Finally, like the Daniel to whom he has been likened, the writer will continue to see visions of bad methods giving way to good ones; and this particular prophet's visions include a board of enlightened directors within whose ranks their former engineer has no place.

Bassler Liquid Meter.

The current number of "Engineering" contains an illustrated description of an instrument for the measurement of fluids, known as the Bassler meter, which is now being made in this country, and has recently been placed upon the market by the British Liquid Meter Company, Ltd., No. 7, Victoria Street, London, S.W. This meter is said to have been extensively employed in the United States for some two or three years, and it is guaranteed to give measurements with an error of less than 0·1 p.ct. over a temperature range of 150° Fahr., irrespective of changes in the viscosity of the fluid or of pulsations and irregularities in the rate of flow. Six standard sizes are being made for pressures up to 350 lbs. per sq.in., and for flows up to 120,000 gallons per hour; but larger ones can also be supplied. Many uses suggest themselves for these meters, but one for which they are particularly suitable is measuring and controlling the supply of oil to liquid fuel burners or to internal combustion engines. The meters are of the single cylinder, positive displacement type, each stroke of the piston delivering a definite quantity which can be accurately adjusted by means of a valve tripping device (controlled by a thermostat when the meter is required to measure the weight of fluid delivered irrespective of volume changes due to temperature variations). The thermostatic arrangement, when provided, results, with increase in temperature of the fluid to be measured, in the valves being tripped later in the stroke, with the consequence that a larger volume of the hotter fluid is delivered to compensate for the reduced weight per unit volume due to the expansion. An automatic valve can be fitted, if required, to cut-off the flow after a pre-determined quantity of fluid has been delivered.

REGISTER OF PATENTS.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for Oct. 1.]

Nos. 22,263 to 22,869.

Canning, T. F.—"Machines for charging and discharging gas retorts, &c." No. 22 353.

Caspari, F.—"Low-temperature distillation of fuels." No. 22,564.

Chambre, F.—"Automatic gas-extinguishing or electric circuit-breaking device." No. 22,669.

Clark, R. G.—See Canning, T. F. No. 22,353.

Cleveland Metal Products Company.—"Thermostatic control for heating devices." No. 22,774.

Dempster and Sons, Ltd., R.—"Apparatus for carbonization of fuel." No. 22,766.

Fyffe, T. L.—"Pipe joints." Nos. 22,611, 22,612.

Fyffe & Co., Ltd.—See Fyffe, T. L. Nos. 22,611, 22,612.

Illingworth Carbonization Company, Ltd.—"Apparatus for carbonization of fuel." Nos. 22,705, 22,706.

Illingworth, S. R.—See Illingworth Carbonization Company, Ltd. Nos. 22,705, 22,706.

M'Indoe, R. W.—"Prepayment meters for gas, &c." No. 22,508.

Nicholls, E. F.—"Prepayment meters." No. 22,702.

Perkin, F. M.—"Distillation and carbonization of carbonaceous materials." No. 22,470.

Sutcliffe, E. R.—"Manufacture of fuel." No. 22,365.

Taunton, R. P,—See M'Indoe, R. W. No. 22,508.

Toogood, H. J.—See Illingworth Carbonization Company, Ltd. Nos. 22,705, 22,706.

PARLIAMENTARY INTELLIGENCE.

Public Utility Companies (Capital Issues) Act, 1920.

A copy was presented last week to the House of Lords and Commons of a report by the Board of Trade under the Act on an application by the Winchester Water and Gas Company.

MISCELLANEOUS NEWS.

GAS REGULATION ACT APPLICATIONS.

There have appeared in the "London Gazette" the following further notices regarding applications to the Board of Trade under the Gas Regulation Act.

DECLARATIONS OF CALORIFIC VALUE.

Bedwellty Urban District Council.—425 B.Th.U. (Oct. 1.)

Llynvi Valley Gas Company.—400 B.Th.U., in substitution for 425 B.Th.U. (Jan. 1, 1925.)

Sittingbourne District Gas Company.—475 B.Th.U., in substitution for 500 B.Th.U. (Jan. 5, 1925.)

South Suburban Gas Company.—500 B.Th.U., in substitution for 480 B.Th.U. (Christmas, 1924.)

GAS REGULATION ACT ORDERS.

We have received from the Director of Gas Administration a copy of the following further Amending Order made by the Board of Trade under section 1 of the Gas Regulation Act.

AMENDING ORDER.

Eastbourne Gas Company.

On the application of the Eastbourne Corporation, the Board have issued an Amending Order to the effect that, as from Sept. 30, section 3 (standard price) of the Eastbourne Gas (Charges) Order, 1921, shall be read as if the words "fourteen decimal six" were substituted for the words "eighteen and three-fifths" therein.

CO-PARTNERSHIP IN THE GAS INDUSTRY.

In a letter to "The Times" last week, Sir J. Fortescue Flannery Bart., Deputy-Chairman of the South Suburban Gas Company, discusses proposals which have been suggested as likely to bring about industrial peace and the restoration of our manufacturing prosperity. Political parties, he says, have put forward different remedies; but the public and our statesmen of all creeds appear to have wilfully shut their eyes to a lesson which has been before them for more than thirty years—the system of co-partnership. Drawing attention to co-partnership in the gas industry, he states that never once has there been a trade dispute of any magnitude or a lock-out or strike in the gas industry during the past thirty years. To quote his own words: "Politicians shout for a share in management by the workers and a share in the rewards and profits of the industry in which the workers are employed, as though they were asking for some new thing. They forget that these advantages all exist extensively and permanently in one trade, and require only to be extended to all trades to reach the same beneficial results. I have myself sat now for nearly 25 years upon the Board of one of the large gas companies, along with two of the weekly wage-earners elected to Directors' seats by fellow workmen, who are co-partners and profit-sharers in the industry. In that Company alone the workmen employed in daily toil for weekly wages have accumulated and hold to-day among them nearly £100,000 of the capital; and every man works not in the spirit of a hireling, but in the spirit of the co-partner who has a personal interest in the welfare and progress of the common enterprise. What I have testified as to one Company in the gas trade extends to other companies in the same trade, and the total share in the capitals of these companies now held by their wage-earners amounts to millions of pounds—the accumulations of years of thrift and profit-sharing. If the industrial peace, the material prosperity, the good and fraternal feeling between employers and employed, now united as co-partners, has been demonstrated over a quarter of a century's experience in one trade, how can it be extended to all? One suggestion has been made that legislative compulsion should be exercised; but this would savour of confiscation; and existing shareholders might feel themselves justified in complaining that their property had been taken without their consent for the purpose of compulsory co-partnership. Perhaps a better way may be found. Might I suggest the remission, in whole or in part, of income-tax in the case of such manufacturing companies as would adopt co-partnership? This would no doubt mean some initial loss to the Revenue, but an ultimate gain even to the Exchequer by reason of the larger output, the avoidance of stoppages of work, and the cheerful energy which all concerned would throw into the common enterprise of Great Britain as one of the chief workshops of the world."

It is interesting to note that the returns for 1923, issued recently by the Ministry of Labour, of the profit-sharing schemes in operation in this country show a slight improvement over those for the preceding twelve months. The 32 schemes associated with the supply of gas, water, and electricity declared an average bonus of £6 4s. 7d. to the 31,359 employees covered by them.

Co-Partnership at Watford.—At the recent annual meeting of the co-partnership members of the Watford Gas and Coke Company, the Chairman of the Company (Mr. E. J. Slinn, J.P.) said that the contributions paid into the withdrawal account of the co-partnership fund had increased by £37. During the first year of the scheme the contributions amounted to £374, while for the past year they totalled £567. The sum of £1979 had been withdrawn from the fund, but £1213 of this had been invested by the members in the purchase of stock to the value of £1269. The total holding was now £9131—a substantial amount of the capital of the undertaking.

TRADES EXHIBITION AT DERBY.

A Trades Exhibition in the Derby Drill Hall, which closed on Saturday, the 4th inst., was visited by nearly 40,000 people, and the Gas Company's exhibit commanded a great deal of attention. It may be remarked that the financial results once more indicate that this is one of the most effective methods of advertising gas.

Placed near the entrance, and of large extent, the lay-out and display of the Derby Gas Company's stands admirably fulfilled the intended purpose of emphasizing the many advantages which gas confers upon its users, and the considerable advance which the industry has made in recent years in the matter of improved apparatus and new inventions. The difference which the installation of gas makes in the work of the housewife and the general comfort of the home was emphasized in arresting fashion by representations, side by side, of two artizans' kitchens. The first one showed "the old way" (without gas), and the second "the new way" (with gas). In "the old way" was a dilapidated fire-grate which the lady of the house was, on her knees, engaged in black-leading. Some of the black-lead, plentifully distributed over her hands, had found its way on to her face, and while she stared disconsolately at the disarranged fire-irons and the half-done grate, she was represented as remarking, "Oh! dear! Dinner late. Wish we had gas." In the new way, the wife was sitting at the table, clean and tidy, reading, and awaiting the arrival of her husband, while the kettle steamed merrily on the gas-cooker. It was an ingenious and forceful advertisement.

These kitchens were on the right hand side of the entrance, and on the left hand side was another exhibit which attracted a great deal of interest from visitors—a gas-engine, with 12½ H.P. dynamo and equipment complete, which has been presented by the Gas Company to the Derby Technical College. This engine, which was shown in operation, costs ¾d. per H.P.-hour to run on town gas, and the cost of generating electricity with it for long periods does not exceed 1d. per unit. Adjoining the stand displaying the engine was a small dark room containing a gas fire made to represent, when lit, burning coal, and directly opposite the entrance were set out a variety of articles connected with the gas industry in its most modern development. The difference between the gas grate and the old style of fire grate was contrasted, while gas coppers provided another instance of the completeness with which the gas company cater for the housewife. A testimony to the efficiency of these coppers is the fact that they have been fixed by hundreds in Derby houses, one type having been installed in the Corporation houses. A geyser of a type which is being fitted extensively in Derby was shown, with other patterns.

WELFARE SCHEME AT BLACKBURN.

The Blackburn Corporation Gas Department have inaugurated an excellent social welfare scheme for the benefit of their employees. Within recent months a commodious Institute has been established, tennis courts (hard and grass laid) have been constructed, a bowling green has been prepared, and plots have been set apart for cricket and football—all adjoining the works. What is more, the work of converting rough barren land into playing fields has been principally done by the gasworkers themselves, assisted by the Borough Engineers' Department and the Parks' Superintendent.

Last Saturday week, members of the bowling section played the final stages of their first cup competition, a silver trophy and gold medal having been presented by Councillor Ernest Hamer, J.P., the Chairman of the Gas Committee. The Mayor presented the prizes to the successful competitors, and congratulated the Department on the smart and clean appearance of everything on the works. "From what I have seen this afternoon," he added, "I think Councillor Hamer and his colleagues have set out to make Blackburn's gas undertaking one of the first in the kingdom."

Councillor Hamer, replying to a vote of thanks for his gift, said the Gas Committee appreciated the work which the men rendered to the undertaking. In Mr. J. P. Mitchell they had one of the best engineers in the country, and he was supported by a loyal staff and a good set of workers. He was glad to know that there was a better feeling among the gasworkers to-day than had been the case for many years, and his hope was that these relationships would continue.

Councillor T. Sharples (Vice-Chairman) endorsed the remarks of the Chairman, and said he fully appreciated the benefit which would accrue to the workmen from the sports organized in connection with the Institute.

Councillor E. Porter (the gasworkers' organizer) declared that there had been a wonderful change in the conditions at the works since the first day he met the Blackburn Gas Committee. He desired to congratulate Mr. Mitchell on having loyally carried out the decisions of the Whitley Council. One of the recommendations of that Council was that the social side should be encouraged, and he was glad to see that this had been done at Blackburn.

Alderman Forrest (leader of the Town Council) remarked that Councillor Hamer and Mr. Mitchell had worked hard for the provision of these greens and playing pitches, and as a result of their perseverance, they had got what they wanted. As one who had visited various gas undertakings in the country, he desired to say that the works at Blackburn had a better approach than any he had seen.

The health of the Engineer, Mr. Mitchell, was proposed by Councillor Hamer, who said their Engineer looked on the human side of labour, and it was not every man who did this.

Mr. Mitchell responded, and expressed the opinion that recreative facilities should have a place in such an industry, and that they were calculated to serve a good purpose. He thanked the Chairman and Vice-Chairman and members of the Committee for the support they had given. His period in Blackburn had been one of the happiest times of his life.

The whole of the work of constructing bowling greens, tennis courts, and cricket and football pitches was carried out by the workmen concerned, under the supervision of Mr. G. P. Mitchell.

AUSTRALIAN GAS LIGHT COMPANY.

The Annual General Meeting of the Company, held at Sydney, on Thursday, Aug. 7, was presided over by Mr. George J. Cohen (the Chairman).

The Secretary (Mr. C. U. B. Gurnett, F.C.I.S.) submitted the report and the audited accounts for the half-year ended June 30. These showed the net profit to be £145,879, out of which the Directors recommended the payment of a dividend for the six months of 4 p.ct. on the old "A" and "B" shares, and in proportion on the new "A" shares; leaving a balance of £33,887 to be carried forward. The capital of the Company has been further increased by the creation of 30,000 additional "A" shares.

The Chairman, in moving the adoption of the report, said that in the first place he would like to refer to what had been a most important development in the gas industry during the past year—the Empire Gas Exhibit at Wembley. Many of their shareholders and consumers would have had a first-hand opportunity of inspecting this example of modern-day enterprise, and would, no doubt, have been impressed not only with the practical manifestation of the spirit of Empire, but with the huge developments in the past, and the potentialities for the future. Those interested in the gas industry in Australia had been kept in touch by their friends on the other side with the steps taken to place before visitors from all parts of the Empire the major features of the Gas Exhibit. They appreciated the enterprise and initiative which had led to this great development and its effects, which would not be confined to the Home Country but must do good to the industry in the Dominions. They would no doubt be surprised to know that the Amusements Park and a large part of the grounds were wholly illuminated by gas, and were admitted to be the most brilliantly lighted sections.

A YEAR OF DEVELOPMENT.

At the last annual conference of the British Commercial Gas Association—an Association which was doing most excellent work for the industry in Great Britain, and was of benefit to the gas industry in other parts of the Empire—the Executive Chairman, Mr. F. W. Goodenough, pointed out that a study of the sales of gas during the past twenty years proved a complete and most encouraging refutation of the idea that the gas industry was stagnating, or, as some would have them believe, moribund. Mr. Goodenough had quoted from the Board of Trade official figures which amply justified his assertion. The growth of their Company was indicated by the following figures: The gas sold for the year ended June 30, 1904, was 1,821,178,000 c.ft., while that for the year ended June 30, 1924, was 5,900,456,000 c.ft. This represented an increase of 4,079,278,000 c.ft., or 224 p.ct., and there was no doubt whatever that, but for the war intervention, greater increases would have been obtained. As they knew, owing to war conditions they were not able to carry out their extensions as they would have liked, and in many cases increased demand for gas could not be met. The year under review had been one of interesting development in regard to works, propaganda, and turn-over. The total gas sold for the twelve months amounted to 5,900,456,000 c.ft., as against last year's figures of 5,417,180,000 c.ft.—a net increase of 483,276,000 c.ft., or 8·9 p.ct. The coal and oil carbonized during the year totalled 532,282 tons, as compared with 496,611 tons for the corresponding period. The cost of these commodities was £610,065, as against £617,196. They would notice that, notwithstanding the larger tonnage, the cost was substantially less, due in the main to reduced expenditure on oil, and economies in manufacture. The revenue derived from gas sales for the year amounted to £1,565,246, as against £1,474,243—an increase of £91,003. The number of consumers, ordinary and prepayment, had now reached 189,629. This represented an increase for the year of 11,294. The number of cookers sold by the Company during the year was 4559; the total sold to date being 65,730, in addition to the large number sold direct by manufacturers and agents. To meet the requirements of new consumers, and to improve the existing supply of various suburbs, 108 miles of mains and services had been laid; the total mileage to date being 3936. The figures relating to bye-products were equally satisfactory. The coke sold during the year amounted to 210,912 tons, as against 203,829 tons. The net revenue derived from the sale of this commodity for the year past amounted to £63,112, compared with £55,797 for the previous period. The tar sales for the year amounted to 5,774,474 gallons, representing a net revenue of £71,664, as against the earlier period with a sale of 5,081,069 gallons and a return of £57,544. With regard to sulphate of ammonia, 4090 tons were disposed of during the year—representing £29 255, and an increase of 634 tons on the corresponding period. During the year they had placed on the market their new wood-preserving oil, known as "Creosote." This was turned out at their Mortlake Works, and they anticipated that when their complete marketing scheme was in operation, it would be a satisfactory seller. They were also placing on the market very shortly their new and improved "Duratar," which would be an efficient and economical alternative to imported bitumen. This commodity was being exhaustively tested in the Company's Laboratories, and certain practical trials were now being conducted. They had also considerably increased the number of consumers for fuel oil, and a market had been found at a satisfactory price for the whole of their available supplies. The innovation of giving service to oil consumers in the form of technical advice and the supply of fuel oil burners had been material factors in placing them in this position.

ADDITIONAL BRANCH OFFICES.

In August last he had referred to the fact that the Directors had adopted the policy of decentralization. This applied not only to the works side, but also to the commercial side of the industry. Additional branch offices had now been opened at Waverley and Burwood, and at the latter place, together with Parramatta, extra facilities had been established for cookery lectures and demonstrations. Indications pointed to the fact that the consumers in the areas referred to fully appreciated the spirit which had led to the opening of these offices—the desire to afford the consumer every possible service and convenience. Arising out of the establishment of the branch office at Burwood, the

Company had arranged for special lighting facilities leading to this office from the main Burwood Road. They had been approached, even at this early date, to consider the application of this service lighting to other areas. A special course of cookery lectures had been given to the employees of various firms. Up to date, some 500 business girls had attended these lectures, which had been regarded as most valuable, both from the point of view of the Company and the present and prospective consumer.

THE COMMERCIAL SIDE OF THE INDUSTRY.

There was a movement on foot to organize the commercial side of the gas industry in New South Wales, having for its purpose co-ordination in all matters relating to the industry, but as a first principle the control and augmentation of propaganda. They would perhaps remember that in his address to the shareholders at the half-yearly meeting in February last he had referred somewhat fully to the negotiations which had taken place between the Company and the Government with regard to the adoption of the new heating standard, instead of the then existing illuminating standard. This arrangement had been in force over the half-year period, and the wisdom of its adoption had been borne out by the results achieved. Since 1914 Australia had made enormous advances along the road of industrial progress, and perhaps nowhere was this better exemplified than in Sydney. National and economic requirements demanded that further advances be made. Their Directors recognized this, and wherever possible the Company had supported local industry. In this respect it would be of interest to them to know that since 1916 the extensions to the Company's works and distribution plant, involving an expenditure of £1,500,000, had been almost wholly effected locally. The Directors further recognized the value of gas as an aid to industry, and had under consideration a scheme for fostering its use in large quantities, which must result in benefit to all classes of consumer and to the public generally. Since their last meeting he had to report that excellent progress had been made with the extensions to the works plant. A further installation of vertical retorts, capable of producing 2½ million c.ft. per day, and subsidiary plants had been commissioned early in June, and were working satisfactorily. Good progress had also been made with the erection of the district gasholder and boosting station at Gordon; and it was anticipated that these would be commissioned about October. In anticipation of an increased demand for gas in the eastern suburbs during the current winter, a boosting station had been installed at Wallis Street, Woollahra, with satisfactory results.

INCREASE IN CAPITAL.

They would notice that a further increase in the Company's capital, by the creation of 30,000 new "A" shares, had taken place on May 19. These had been offered by auction under terms of the Gas Act, and had all been disposed of at prices ranging from £6 12s. 6d. to £6 14s. 6d. This increase had been made necessary in view of the large extensions at the Mortlake Works now being carried out to meet the increased demands for gas.

The report and accounts were unanimously adopted; and a hearty vote of thanks was accorded the Directors and officers for their efficient management of the Company's business during the past half-year.

COLONIAL GAS ASSOCIATION, LTD.

It is expected that copies of the report and accounts of the Association for the year ended June 30 will reach London towards the end of this month from the head office, which is now situate in Melbourne, where the annual general meeting is being held to-day (Oct. 8).

Pending the receipt of these documents, the London Secretary (Mr. C. Holmes Hunt) has advised shareholders of the receipt by cable of intimation to the effect that the profit for the year to June 30, including the balance brought forward and after providing depreciation and all taxes outstanding, amounts to £29,999. The Directors recommend payment of a final preference dividend at the rate of 7 p.ct. per annum, and a dividend on the ordinary shares at the rate of 9 p.ct. for the year, adding £2000 to the reserve fund. This will absorb £21,843, leaving the sum of £8156 to be carried forward to next year's account. The Directors refer with deep regret to the death of Mr. Samuel Spencer (who had been Chairman for 35 years) and of Sir John Taverner (who had been a member of the Melbourne Board), and report the appointment of Mr. H. A. Underwood to fill the latter vacancy. They also refer to the amalgamation with the Williamstown Gas Company on June 13 last, and to the successful issue of 7½ p.ct. debentures to the amount of £55,000.

An increase is recommended in the capital of the Association by the creation of 40,000 additional preference and 40,000 additional ordinary shares of £1 each. The preference dividend is proposed to be increased to 8 p.ct. Various amendments are proposed to the Articles of Association, mainly to facilitate the "listing" of the Association's shares on the Melbourne Stock Exchange.

Atherton Gas Price Reduced.—Atherton District Council have decided to reduce the price of gas 4d. per 1000 c.ft. as from June 30—from 4s. 8d. to 4s. 4d. In addition, consumers of over 2000 c.ft. in the June and September quarters, and consumers of 3000 c.ft. in the December and March quarters, are to have their discount increased by 5 p.ct. Prepayment meters will benefit by similar reductions.

Deal and Walmer Gas and Electricity Company.—In their report to the stockholders for the year ended June 30 last, the Directors of the Company state that since the last meeting the calorific value of the gas has been raised from 450 to 475 B.Th.U. A further reduction has been made in the price as from June 25 last to 10·4d. per therm (equivalent, on the new calorific basis, to 4s. 1·4d. per 1000 c.ft.). The Directors recommended a dividend of 7½ p.ct. per annum for the last half-year, making, with the interim dividend paid in March last, 7½ p.ct. for the year. The business of the Company has continued to expand, and in order to cope with the increasing demands new purifying and scrubbing plant and station meter have been put in, and the water gas plant has been duplicated.

NORTH-EAST COAST COAL TRADE.

From our Own Correspondent.

While there has been no general improvement in conditions during the past week, there has perhaps been a slightly more cheerful sentiment in some sections, and a feeling that there has been rather more business about. There has been more demand for Durham bunkers, and best qualities have been able in some cases to harden their quotations by a few pence. On the other hand, best Durham gas makes have not been quite so firm. Nominal quotations are at 22s. 6d. for Wear Specials, and 21s. to 22s. for best qualities. Against this, seconds have been harder, 17s. 6d. to 18s. being about the price, and fairly firm at this. It was inevitable that the big difference in price between bests and seconds should be reduced in some way or other.

Although prospects for the remainder of this month may be said to be no worse, there are still no signs of business developing for any further periods. Buyers' ideas for next year are still as hopeless as ever from the colliery cost point of view, and reports from abroad are all to the effect that English coal is not needed.

COAL TRADE IN THE MIDLANDS.

From our Local Correspondent.

The market is sluggish all round, and collieries are now having to re-adjust the output of household fuel so that pits which had been working full time are no longer able to find employment for the whole week. The period of the year enables sellers to keep up prices of superior grades. Bargains can be offered in some medium class coals suitable for domestic use; but consumers are not very ready to take advantage of them. Values of industrial fuel are sagging. Quotations for blast furnace coke on the open market have adjusted themselves to the new scale agreed upon with Midland smelters, which is based on 16s. 9d. at ovens for coke containing 20 p.ct. of moisture. Supplies of gas coal exceed the demand. Nearly all the gas-works are so heavily stocked that offers of spot lots at tempting prices receive little attention. The rate of consumption continues to disappoint expectations. The Holly Bank Coal Company have now opened the Hilton Main on the western confines of Cannock Chase after four years' work. The shaft is 650 yards deep, and the plant is electrically operated; the winder, geared up to a 1350-2000 H.P. motor, having a capacity of 300 tons per hour. There is an electric-pneumatic decking installation, with creeper to carry the tubs to the screens, and direct loading. The 8-ft. seam will be linked up with the existing workings at Essington.

LANCASHIRE AND YORKSHIRE COAL TRADE.

From our Local Correspondent.

There has been a fair improvement in the demand for house coal in Lancashire during the week, and prices have ruled very firm. This demand is sure to bring more slack into the market, but as yet the prices of slack at the Lancashire pits are steady at from 12s. to 16s. per ton.

Industrial coal has not been particularly active. At Manchester the Lancashire Collieries Association announced an immediate advance of 1s. 8d. per ton in the price of coal—an increase affecting Lancashire, Cheshire, and Staffordshire. In Yorkshire house coal has been in increased demand, and collieries report full order books for this description. There is, however, little or no improvement in the demand for industrial fuel, and none is expected for some weeks. Gas coals outside contract continue weak, but the tone of the markets is brighter, and an improvement is foreshadowed. Due to uncertainty in buying circles on the Continent, there has been a marked lack of orders for all descriptions of export coal. Foreign buyers' ideas of prices are considerably below current quotations. At Hull best South Yorkshire hards maintained late values, but all other qualities were weak.

Owing to the restricted inland demand, cokes have fallen in value, and were obtainable at from 24s. 3d. to 24s. 6d. f.o.b. This is a fall of 3s. in a fortnight.

The following were among the prices ruling: Cargo for export, f.o.b., usual shipping ports: Best Yorks hards, Association, 23s. 6d.; Derby best hards, 24s. 6d. to 25s.; South Yorks washed doubles, 19s. to 20s.; ditto washed singles, 18s. 6d.; South Yorks washed smalls, 15s. 9d.; Derby slack, 1 in., 11s. 6d.; South Yorks rough slack, 12s. 6d. to 13s.; gas coke, 34s. to 36s.; foundry furnace coke, 24s. 3d.; washed smithy peas, 21s. 6d. to 26s.; washed steam thirds, 19s. 3d.; and South Yorks washed trebles, 22s. 9d. per ton.

Killamarsh Gas Affairs.—Complaints of poor gas were made at a meeting of the Killamarsh Council last Friday, and it was stated that this had been due to a breakdown at the source of supply, which had taken a considerable time to repair. It was contended that the gas supply was not sufficient for street lighting and for house consumption; and it was resolved to draw to the matter the attention of the Colliery Company who supply the area. It was agreed to spend £250 on street lighting by gas during the winter season.

Lytham-St. Annes Gas Department.—The statement of accounts of the Lytham-St. Annes gas undertaking, for last year, shows a loss of £2955, compared with a profit for the previous year of £12,144. The income was £61,767; sales of gas totalling £39,872, and residual products £14,725. The loss on the year had been met out of a credit balance of £5649, and the reserve fund of £10,000 remained unaltered. During the year, £42,926 was spent on the new works at Eastham. Speaking of the loss, Mr. J. Smethurst, J.P., Chairman of the Finance Committee, said that to some extent this was accounted for by the reduction in gas charges. A greater reason was that a portion of the cost of the new works had been placed against revenue.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *Oct.* 6.

In the London market the value of pitch is an uncertain figure, as according to different accounts sales have been effected as low as 41s. and as high as 56s. 6d. during the past week. It is clear that an operation to "bear" the price of pitch is in full swing, mainly in the provinces. Here, however, the principal makers, being reasonably well sold, refuse to be stampeded. Shipments from this port were good last month, and for October they will be so large as probably to form a record. It should be remembered that the pre-war value of London pitch was about 42s. 6d. net per ton; while production costs to-day are at least 50 p.c. more than pre-war. Creosote is steady at about 6½d. net per gallon in bulk at makers' works. Other products are unchanged.

Tar Products in the Provinces.

Oct. 6.

There has been little alteration in the market for tar products during the past week.

The average values for gas-works products during last week were: Gas-works coal tar, 25s. to 30s. Pitch, East Coast, 40s. to 42s. 6d. f.o.b. West Coast—Manchester, 35s. to 37s. 6d.; Liverpool, 36s. to 38s. 6d.; Clyde, 37s. 6d. to 40s. Benzole 90 p.ct., North, 1s. 2d. to 1s. 3d.; crude 65 p.ct. at 120° C., 9d. to 10d. naked at makers' works; 50-90 p.ct., naked, North, 1s. 2d. to 1s. 3d Toluole, naked, North, 1s. 2d. to 1s. 3d., nominal. Coal tar crude naphtha in bulk, North, 7d. to 7¼d. Solvent naphtha, naked, North, 1s. to 1s. 1d. Heavy naphtha, North, 1s. to 1s. 1d. Creosote, in bulk, North, liquid, 5d. to 5¼d.; salty, 4⅝d. to 5d.; Scotland, 5d. to 5⅝d. Heavy oils, in bulk, North, 7d. to 7¼d. Carbolic acid, 60 p.ct., 1s. 7½d. to 1s. 8½d. prompt. Naphthalene, £13 to £15; salts, £5 to £7, bags included. Anthracene, "A" quality, 4d. per minimum 40 p.ct., purely nominal; "B" unsaleable.

TRADE NOTES.

Davis Gas Grates.

The new season's gas-fire catalogue just published by the Davis Gas Stove Company, Ltd., is a first-class production. The cover is most attractive, and the contents of the little book no less so.

Firebricks.

In last week's "JOURNAL" mention was made of a new catalogue of great artistic merit issued by Guiseppe Verzocchi. The title of this publication is "Veni-VD-Vici" and it is obtainable from the Sté Anye. G. Verzocchi, Milan, Italy.

Unforeseen Requirements.

At this late season, as well as in cases of emergency, it is good to know that the organization of Messrs. Drakes, Limited, of Halifax, was never so ready. Whether the requirement be a furnace and setting complete with ironwork, or only a single casting, matters not, for the whole of the necessary facilities are under the firm's personal and undivided control. All mouthpiece castings, ascension, arch, and dip pipes, feeding and clinkering frames, doors, &c., are of "Refrakton"—a metal mentioned in the "JOURNAL" for Sept. 24, p. 943.

Co-Partnership at Bournemouth.—The Committee of the Bournemouth Gas and Water Company's Co-partnership Scheme, in their report for the year ended June 30, state that the bonus is at the rate of 8½ p.ct., and the total thereof credited to the co-partners for the past year is £7032, making £49,565 for the period from 1908 to 1924.

Main Extensions at Northampton.—During the past summer the Northampton Gas Light Company, whose Engineer and Manager is Mr. George S. Eunson, have carried out considerable extensions to their mains. On the west side of the town they have extended to the villages of Harpole and Kislingbury, and on the north side to the villages of Boughton, Pitsford, and Brixworth. The work was commenced in April last, and has just been completed. The total length of mains laid for the two schemes is about 14 miles.

New Companies.—A newly registered company is the Silent Fire, with a capital of £100, to manufacture and deal in furnaces and apparatus for the utilization of gas fuel. The address is Parliament Mansions, Victoria Street, London, S.W. With a capital of £10,000, the Sprague Meter Company has been registered to manufacture meters at Dreadnought Works, Leam Street, Leamington. Messrs. G. Hands & Co., of No. 67, Farringdon Road, London, E.C., is a new registration, with a capital of £1000, to carry on business as engineers, founders, smiths, and machinists. With a capital of £5000, Middlesex Gas-Meters, Ltd., has been formed, to carry on business at Trinity Works, Montague Road, Hounslow.

Luton Gas Company.—At the 133rd ordinary meeting of the Company last week, the Chairman (Mr. John W. Green) indicated that before many more months had passed it would be necessary to make additions to the plant to cope with increased business consequent upon the growth of Luton and the villages on its borders. These extensions would entail the raising of additional capital. He believed they could offer their friends in Luton and district a sound and substantial investment. The amount, he thought, would be between £30,000 and £40,000. In reply to a questioner, the Manager (Mr. William Phillips) said the capital would be required about the spring or summer of next year. In the Directors' report it was stated that there was an increase in the quantity of gas sold during the half-year of no less than 8·87 p.ct. as compared with the corresponding period of 1923. The price for the past half-year was 6·6d. per therm, against 8·3d. per therm for the first half of last year. Mr. Phillips pointed out that the sales of gas were a record in the history of the Company.

South Suburban Gas Company's Capital Issue.

There will be found in the advertisement columns of this issue of the "JOURNAL" particulars and conditions of sale by tender of £100,000 of 5 p.ct. ordinary stock of the South Suburban Gas Company, to rank *pari passu* with the existing ordinary stock. Tenders, addressed to the Chairman, must be received by the Company (as directed) not later than 12 o'clock noon on Tuesday, Oct. 14. The minimum price is £101 per £100 of stock; and dividends will commence to accrue from Nov. 1. The dividend on the Company's ordinary stock (which is subject to sliding-scale) for the half-year ended June 30 was at the rate of 6½ p.ct. per annum. The rapidly developing area supplied by the Company comprises 145 sq. miles, and includes parts of the Metropolitan Boroughs of Lewisham, Camberwell, and Lambeth, and the County Borough of Croydon, and the whole of Beckenham, Penge, Bromley, Orpington, Chislehurst, The Crays, Sidcup, Bexley, &c., and the important industrial districts of Crayford, Dartford, and Erith. The business of the Company is increasing year by year, the sales of gas for the half-year ended June 30 last showing an increase of 6·82 p.ct. over the corresponding period of last year, while upwards of 1200 new consumers were secured during the half-year, and 2330 additional gas cookers and fires were sold and hired in the same period. The Company now ranks fifth among the Metropolitan and Suburban gas undertakings.

Price of Gas at Haltwhistle.—The Haltwhistle Gas Light Company have reduced the price of gas by another 3d. per 1000 c.ft., which brings the charge down to 4s. 9d., as compared with 3s. 9d. in 1914.

British Industries Fair.—The Midland Section of the British Industries Fair will be held at Castle Bromwich, Birmingham, from Feb. 16 to 27, concurrently with the London Section, at the White City. The schedule will include, as previously, under the group "Power, Lighting, Heating, Cooking, and Ventilating," gas, electrical, oil, steam, and all other plant, equipment, and fuels.

Bootle Lamplighters' Wages.—The Bootle Town Council have upheld the decision of a Special Committee that the lamplighters had failed to make out a case for an advance in wages. The men, it was stated, received 1s. 6d. an hour for lighting and extinguishing, and the wages worked out at 33s. 6d. a week. Mr. Flynne, in pleading for an increase, said 33s. 6d. would not support a family. In reply, Mr. Warburton enumerated the various ways in which lamplighters supplemented their earnings,

Leamington Priors Gas Company.—Presiding at the 119th general meeting of the Company, Dr. Harold Mason said he hoped the half-year's working would be considered satisfactory. They were paying the usual dividend, and, in spite of the high price of coal, were reducing the charge for gas to 8¾d. per therm, or 3s. 6d. per 1000 c.ft., after the end of the Michaelmas quarter. A very substantial reduction was made twelve months ago, and this further concession brought the price to only 40 p.ct. above the pre-war rate. The quantity of gas sold in the half-year showed an increase of over 7 p.ct. as compared with the corresponding period of 1923. The report was adopted, and Mr. R. S. Ramsden (the General Manager and Engineer), staff, and employees were thanked for their services.

Gas Workers' Appreciation.—At intervals since August parties comprising members of the staff and employees of the Luton Gas Company have been visiting Wembley at no expense to themselves; and the generosity of the Chairman and Directors of the undertaking led to a meeting representative of all grades, presided over by Mr. J. H. Wright (Works Superintendent). It was unanimously agreed that a resolution of thanks should be sent to the Chairman and Directors through Mr. William Phillips (Manager, Engineer, and Secretary) for their kindness in allowing the whole of the employees to visit Wembley without loss of time, and free of travelling expense and admission to the Exhibition. The resolution was proposed and signed by officials and men representing the various departments. Thanks were also heartily accorded Messrs. A. C. Williams, J. Scrivener, and O. Gravestock, who were responsible for carrying out the necessary arrangements. Six parties in all visited the Exhibition.

Gas Tests at Harpenden.—It was reported at a meeting of the Harpenden Urban District Council that on a test by the County Gas Tester one afternoon recently, the calorific value was found to be only 423·8 B.Th.U., or 26·2 B.Th.U. below the declared value of 450 B.Th.U. A second test 70 minutes later showed that the calorific value had been increased to 504·1 B.Th.U., thus bringing the average, within a period of two hours, above the declared minimum. The Committee considered the results shown unsatisfactory, and had asked the Gas Company for an explanation. In a letter from the Company it was stated that it was difficult to keep the gas at one standard throughout the day. The deficiency was at a time when there was very little consumption, and consequently the gas came through without properly mixing with the gas in the holder. The Clerk (Mr. C. S. Tuckey) said the Council could take no action, as the average during the statutory testing period was above the standard.

Sulphate Works Fatality.—The Manchester City Deputy Coroner, Mr. P. Higson, held an inquiry last Thursday into the death of Patrick Clinton, of Manchester, who was employed as a labourer at the works of Messrs. Hardman and Holden, Ltd., tar and ammonia distillers, Miles Platting, Manchester. It was stated in the course of the evidence that the deceased was employed with other workmen bagging sulphate of ammonia from a stack which contained from five to six tons. While the men were at work the stack collapsed without warning, and Clinton was almost completely buried. He sustained a fractured skull, and died before the ambulance reached the hospital. The Assistant Manager at the works, who gave evidence, said his firm had just completed the installation of a plant to work on a new process, and that the stack on which Clinton was working was actually the last made under the old system. The method had always been in use at the works in question; and witness stated that there had not been a serious accident for over fifty years. A verdict of "Accidental death" was returned; Mr. Higson stating that, in view of the record of the firm, no blame was attached to them.

STOCK MARKET REPORT.

THE Stock Exchange opened last week with a steady appearance which continued until Thursday, when the possibility of an early General Election caused some uneasiness. This, coupled with the approach of the fortnightly settlement, overshadowed the markets and reduced the volume of business. The gilt-edged market was the first to be affected, and after a firm opening, declined at the close with little variation on the previous week's prices.

It is believed that the German loan will be ready for issue about the middle of the month, and, judging from the numerous requests for information as to the terms, it would appear that there is a growing interest in the issue. The general opinion is that these will be 7½ p.ct. at 95.

In the Industrial and Miscellaneous Markets business was quiet. Textiles were generally dull. Oils still remain in favour, Mexican Eagle predominating. The interest in Tea shares has subsided somewhat, and prices sagged.

The political situation was not reflected in the Gas Market. Prices remained firm with an upward tendency, and transactions were more numerous than during the past few weeks. Gas Light ordinary showed a further slight improvement; Primitiva £1 shares were marked up 2s.; and Imperial Continental gained another 3 points.

The following transactions were recorded during the week:

On Monday, Brentford "A" 111½, 112, 113. "B" 111½, 112, 113½, Continental Union 40, European 8, 8 3/32, 8⅛, Gas Light and Coke 94½, 94⅜, 95, 95⅛, 95⅛, 95⅜, 95⅛, 95⅜, 95⅜, 95⅞, 4 p.ct. preference 79½, 80, Hastings and St. Leonards 5 p.ct. 98, Imperial Continental 173, 174, 175, Primitiva 7s. 3d., 7s. 6d., 7s. 7½d., 7s. 9d., 8s., 8s. 3d., South Metropolitan 99, 99⅛, 99⅜, 99⅛, 99⅜, South Suburban 5 p.ct. 104, Tottenham "B" 100, Wandsworth (Wimbledon) 111½. Supplementary prices, Colonial Gas Association 5 p.ct. debenture 69½, Crowborough District cons. 46½, 47.

On Tuesday, Alliance and Dublin 64½, *ex* div., Bombay 5⅛, 5 5/16, Brentford "A" 112½, 113, "B" 112½, 112⅝, 113, Cape Town 4½ p.ct. debenture 73, Commercial 4 p.ct. 92½, 94, Continental Union 39, Gas Light and Coke 95⅛, 95⅜, 95⅛, 95⅜, 95⅛, 96, 3½ p.ct. maximum 62½, 63⅛, 4 p.ct. preference 80½, Imperial Continental 173, 173¾, 174½, Lea Bridge 100, Montevideo 58, Primitiva 7s. 4½d., 8s., 8s. 1½d., 8s. 6d., South Metropolitan 98⅜, 99, 99½, 99⅝, Tuscan 8s., Wandsworth (Wimbledon) 112½. Supplementary prices, Colonial Gas Association 15s. 6d., 7 p.ct. preference 15s., Danish 60s. 7½d., 5 p.ct. preference 5⅜, Worthing 5 p.ct. cons. 92½, 93.

On Wednesday, Aldershot "C" 82, 82½, Alliance and Dublin 64⅛ *ex* div., Brentford "A" 112½, "B" 111½, 113⅜, 6 p.ct. Richmond debenture 102½, 103½, Bristol 5 p.ct. maximum 92, British 116½ *ex* div., Commercial 4 p.ct. 92, 92½, 3½ p.ct. 92½, Continental Union 40⅜, European 8¼, Gas Light and Coke 95½, 95⅝, 96, 4 p.ct. preference 79⅜, 80½, Hastings 3½ p.ct. converted 78½, Primitiva 8s. 3d., 8s. 4½d., 8s. 6d., 8s. 7½d., 8s. 10½d., South Metropolitan 99, 99⅛, 99⅜, South Suburban 104½, 105½, Tottenham "B" 101½.

On Thursday, Aldershot "C" 82, 82½, Commercial 4 p.ct. 94, Continental Union 39½, 40, Gas Light and Coke 95½, 95⅝, 95⅜, 96, 96½, 3½ p.ct. maximum 62½, Imperial Continental 172½, 175, Primitiva 8s. 10½d., 9s., 9s. 0½d., 9s. 1½d., 9s. 3d., 9s. 4½d., 9s. 6d., 9s. 10½d., South Metropolitan 99⅛, 99⅜, 3 p.ct. debenture 61½. Supplementary prices, Ascot 4½ p.ct. debenture 75.

On Friday, Brentford "A" 112½, "B" 112, 112½, Brighton and Hove original 171, British 116½ *ex* div., Cape Town 7½, Commercial 4 p.ct. 93, 94, European 8 1/16, Gas Light and Coke 95⅛, 95½, 95⅝, 95½, 95⅝, 95½, 96, 96½, 3½ p.ct. maximum 62½, 63⅛, 4 p.ct. preference 79½, 80½, Imperial Continental 173½, 175, Montevideo 56½, 58, Primitiva 9s., 9s. 3d., 9s. 6d., South Metropolitan 99, 99⅛, 99⅜, 99⅛, 5 p.ct. preference 99½, 3 p.ct. debenture 61. Supplementary prices, Kingston-upon-Thames 105⅝, Southgate 5 p.ct. preference 92.

In Lombard Street there were large borrowings from the Bank of England at the commencement of the week to satisfy the end of the month's requirements. At the close loanable credits were in ample supply. The rate for old day-to-day loans was 2½ p.ct., while new money was obtainable down to 2 p.ct. Friday's Treasury Bills issue at £3 14s. 3·89d. p.ct. was nearly 2s. above last week's rate.

The Foreign Exchanges displayed little animation. Sterling on New York reacted to 4.46 5/16, the French rate closed at 84.62½, and Belgian francs at 92.40.

The Silver Market was firm on Indian and Chinese buying and closed at 35½d.—an increase of 3/16d. over the previous week.

The Bank rate is 4 p.ct., to which it was raised from 3 p.ct. on July 5, 1923. Bankers' deposit rates are 2 p.ct. The deposit rates of the discount houses are 2 p.ct. at call and 2½ p.ct. at notice.

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Oct. 3.	Rise + or Fall − on Week.	Transactions Lowest and Highest Prices.
£			% p.a.	% p.a.				
171,978	Stk.	Aug. 14	5	5	Aldershot 5 p.c. max. C.	80—83	..	
235,492	,,	,,	4	4	Do. 4 p.c. Pref.	68—72	..	82—82½
1,551,868	,,	Sept. 25	6	6½	Alliance & Dublin Ord.	61—66*	..	..
374,000	,,	July 10	4	4	Do. 4 p.c. Deb.	63—68	..	64½
300,000	5	May 22	8	8	Bombay, Ltd.	5—5⅛	..	..
100,000	10	Aug. 14	8½	8½	Bournemouth 5 p.c.	12⅝—13½	..	5⅛—5 5/16
383,110	10	,,	7	7	Do. B 7 p.c.	11½—12½	..	..
150,000	10	,,	6	6	Do. Pref. 6 p.c.	10½—11½	..	..
50,000	Stk.	June 26	3	3	Do. 3 p.c. Deb.	54—59	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb.	74—79	..	..
992,045	,,	July 10	6 1/16	6 1/16	Brentford A Con.	110—115	..	..
990,500	,,	,,	6½	6½	Do. B New	110—115	..	111¼—113
76,000	,,	,,	5	5	Do. 5 p.c. Pref.	87—92	..	111¼—113½
306,690	,,	June 12	4	4	Do. 4 p.c. Deb.	75—80	..	..
181,337	,,	,,	—	6	Do. 6 p.c. Rich. Red. Deb.	100—105	..	..
214,740	,,	Aug. 28	11½	11½	Brighton & Hove Orig.	167—172	..	102½—103½
244,200	,,	,,	8½	8½	Do. A Ord.	123—126	..	171
1,287,500	,,	July 24	5	5	Bristol 5 p.c. max.	91—92a	..	..
855,000	,,	Sept. 25	7	8	British Ord.	115—120*	..	92
100,000	,,	June 26	7	7	Do. 7 p.c. Pref.	118—123	..	116½
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	72—77	..	..
100,000	10	May 22	6	8	Cape Town, Ltd.	6¼—7¼	..	..
100,000	10	Apr. 24	4½	4½	Do. 4½ p.c. Pref.	6—7	..	7½
150,000	Stk.	June 26	4½	4½	Do. 4½ p.c. Deb.	71—76	..	..
626,860	,,	July 24	6	6	Cardiff Con. Ord.	97—100	..	73
237,860	,,	June 26	7½	7½	Do. 7½ p.c. Red. Deb.	103—106	..	..
157,150	,,	Aug. 14	6½	5	Chester 5 p.c. Ord.	86—91b	..	..
1,513,280	,,	July 24	6	6	Commercial 4 p.c. Cap.	91—94	..	..
560,000	,,	,,	6	6	Do. 3½ p.c. Cap.	91—94	..	92—94
475,000	,,	June 12	3	3	Do. 3½ p.c. Deb.	56—59	..	92½
800,000	,,	14 Jan. 15	—	—	Continental Union, Ltd.	38—43	−2	..
200,000	,,	June 12	7	7	Do. 7 p.c. Pref.	87—92	..	39—40½
660,000	,,	Aug. 28	6½	6½	Croydon sliding scale	100—103	..	..
284,975	,,	,,	5	5	Do. max. div.	84—87	..	..
492,270	,,	Aug. 28	9	6	Derby Con.	107—110	..	..
55,000	,,	July 10	4	4	Do. Deb.	74—76c	..	..
209,000	,,	Apr. 3	5	5	East Hull 5 p.c. max.	..	..	..
1,002,180	10	July 24	2	6	European, Ltd.	7⅛—8½	..	8—8½
16,503,045	Stk.	Aug. 14	5½	5½	Gas Light & Coke 4 p.c. Ord.	94½—96½	+½	94½—96½
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	61—64	..	62½—63½
4,062,235	,,	,,	4	4	Do. 4 p.c. Con. Pref.	78—81	..	79½—80½
4,761,930	,,	June 12	3	3	Do. 3 p.c. Con. Deb.	60—63	..	..
130,000	,,	—	10	10	Do. 10 p.c. Bonds	..	..	..
42,000	,,	—	7½	7½	Do. 7½ p.c. Ilford Deb.	..	..	..
82,500	,,	Sept. 11	6½	6½	Hastings & St. L. 5 p.c. Conv.	95—100	..	..
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	75—80	..	98
70,000	10	Sept. 25	10	10	Hongkong & China, Ltd.	15½—16½*	..	78½
86,600	Stk.	Aug. 14	10	10	Hornsey 7 p.c.	138—143	..	..
1,976,000	,,	May 22	10	30	Imperial Continental Cap.	172—177	..	..
263,950	,,	Aug. 14	3½	3½	Do. 3½ p.c. Red. Deb.	68—72	+3	172½—175
235,242	,,	Aug. 14	6½	6½	Lea Bridge 5 p.c. Ord.	95—100	..	..
2,127,340	,,	Aug. 14	5½	5½	Liverpool 5 p.c. Ord.	89—90b	+⅛	100
600,000	,,	Sept. 25	7	7	Do. 7 p.c. Red. Pref.	102—105*b	..	..
165,736	,,	Aug. 28	8	9	Maidstone 5 p.c. Cap.	120—125	..	..
63,480	,,	June 26	3	3	Do. 3 p.c. Deb.	53—58	..	..
75,000	5	,,	5	7	Malta & Mediterranean	3¼—3½	..	..
341,920	Stk.	June 12	4	4	Montevideo, Ltd.	54—59	..	..
1,875,892	,,	July 24	5½	5	Newcastle & Gateshead Con.	82—83d	+1	56½—58
250,166	,,	,,	4	4	Do. 4 p.c. Pref.	74—75d	..	..
529,705	,,	June 26	3½	3½	Do. 3½ p.c. Deb.	70—72d	..	..
15,000	10	Aug. 28	11	11	North Middlesex 10 p.c.	15½—16½	..	..
75,940	10	,,	7 7/16	7 7/16	Do. 7 p.c.	11—11½	..	..
300,000	Stk.	May 8	9	7	Oriental, Ltd.	99—102	..	..
138,120	,,	June 26	7¼	7½	Plym'th & Ston'house 5 p.c.	112—117	..	..
60,000	50	Aug. 28	13	13	Portsea Island B	99—102	..	..
100,000	50	,,	12	12	Do. C	95—100	..	..
2,289,909	1	—	—	—	Primitiva Ord.	8/9—9/9	+2/-	7/3—9/10½
341,400	100	June 2	4	4	Do. 4 p.c. Red. Deb.	76—79	..	..
600,000	Stk.	July 24	4	4	Do. 4 p.c. Red. Deb. 1911	53—59	..	..
320,335	,,	June 26	4	4	Do. B. Aires 4 p.c. Rd. Db.	54—57	..	..
321,670	,,	,,	4	4	Do. R'r P'te 4 p.c. Rd. Db.	54—57	..	..
150,000	10	Sept. 25	6	6	San Paulo 6 p.c. Pref.	61—71*	..	..
125,000	50	July 1	5	5	Do. 5 p.c. Red. Deb.	41—44	..	..
270,000	Stk.	Aug. 28	5/8/4	5½	Sheffield A	101—103e	..	..
419,968	,,	,,	5/8/4	5½	Do. B	101—103e	+1	..
1,047,000	,,	,,	5/8/4	5½	Do. C	101—103e	+1	..
90,000	10	June 12	6	8	South African	101—103e	+1	..
6,609,895	Stk.	Aug. 14	6½	5	South Met. Ord.	7—9	..	..
102,580	,,	July 10	5	5	Do. Red Pref.	98½—100½	..	98½—99½
1,895,445	,,	,,	3	3	Do. 3 p.c. Deb.	96—98	..	99½
734,000	,,	Sept. 11	6½	6½	Do. 6½ p.c. Red. Deb.	59—62	..	61—61½
91,500	,,	Aug. 28	8½	8½	South Shields Con.	101—103	..	..
1,067,795	,,	Aug. 14	6½	6½	South Suburban Ord. 5 p.c.	134—136d	..	..
368,837	,,	June 26	5	5	Do. 5 p.c. Deb.	103—106	+1	104—105½
647,740	,,	May 8	5	5	South'mpt'n Ord. 5 p.c. max.	93—98	..	..
121,275	,,	June 26	4	4	Do. 4 p.c. Deb.	85—88	..	..
250,000	,,	Aug. 28	7	7	Swansea 7 p.c. Red. Pref.	73—78	..	..
200,000	,,	June 26	6½	6½	Do. 6½ p.c. Red. Deb.	101½—103½	..	..
120,000	,,	July 24	8	8	Tottenham District A 5 p.c.	102—104	..	..
882,275	,,	,,	6½	6½	Do. B 3½ p.c.	116—119	..	..
181,255	,,	June 12	4	4	Do. 4 p.c. Deb.	99—102	..	..
258,251	,,	Aug. 28	7/14/4	5	Tynemouth Con. and New	76—80	..	100—101½
30,000	,,	July 10	9½	9½	Wandsworth, Wimbledon, and Epsom—	84—86d	..	..
255,636	,,	,,	7½	7½	Wandsworth A 5 p.c.	135—140	..	..
108,075	,,	,,	6/7/9	6/9/6	Do. B 3½ p.c.	113—118	..	..
240,865	,,	,,	6/7/9	6/9/6	Do. C	96—101	..	..
352,000	,,	,,	7½	7½	New Ordinary	..	..	..
98,000	,,	,,	7½	7½	Wimbledon 5 p.c.	110—115	..	..
88,416	,,	June 26	3	3	Epsom 5 p.c.	115—120	..	111¼—112½
					3 p.c. Deb.	55—60	..	..

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. * Ex. div.

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Preston Gas-Works Extensions.—The Preston Gas Company have acquired Hardshaw Hillock Farm, consisting of some 32 acres of land, lying to the north-west of Preston Junction. They are making application to the Board of Trade for powers to erect thereon plant for the manufacture and storage of gas to meet the growing demands within the area of supply.

Hereford Gas-Works Inquiry.—An inquiry was held at Hereford last week into an application by the City Council to borrow £1200 to cover the cost of a new main. The Town Clerk, giving evidence, said the gas pressure had been faulty, so that people had been unable to cook their Sunday dinners. As so many complaints had been received, the Corporation had laid down a 4-in. high-pressure main to supply the south area of the city. It came out in the course of questions regarding the mixing of water gas with coal gas at Hereford that the amount of carbon monoxide contained in the gas supplied to consumers was 18 p.ct. The Inspector remarked that the Ministry of Health considered this too high, and the percentage should not be more than 12. It was better to be on the safe side.

The Burnley Gas Committee have decided to offer gas fires and radiators on the rental system. Fires will be fixed free, and loaned for an annual rental of 6s.

"Death from shock following burns" was the verdict at an inquest at Stockton, on Thursday last, on Doreen Hardy, aged 15, of Bowser Street, whose dress became ignited while she was lighting a gas fire.

The Chairman of the Rotherham Gas Committee (Alderman W. G. Bingham) has resumed his public duties in connection with the gas undertaking after a severe illness; and at the recent Council meeting he was heartily welcomed.

Rather than wait for the result of the appeal from the Bailhache judgment, Alderman R. W. Winnicott, a member of the Plymouth Corporation, has resigned his Directorship of the Plymouth and Stonehouse Gas Light Company.

A gas poisoning case was investigated by the Barnsley Coroner at an inquest on Friday last on the body of a domestic servant named Greaves, who was found gassed in her bedroom at the Old Crown Inn, Penistone. The Coroner said there was nothing to suggest suicide, and he returned a verdict of "Accidental poisoning by gas."

The men engaged on the coke-oven plant of Messrs. Dorman, Long, & Co., Warrenby Works, near Middlesbrough, have received seven days' notice to cease their employment. At the expiration of this period they will be engaged from day to day. There are fears that the plant may have to be closed down altogether. About 120 men are affected.

Last year there was a net profit of £1238 on the Tyldesley Gas Board's operations, compared with a loss of £2000 three years ago. This increased the net balance to £3063. In April, 1923, the loan capital was £5961, and the amount borrowed during the year £860. Over £1181 has been paid off, which leaves the amount outstanding at £5640. More gas has been sold than in the previous year, and the amount of leakage has been decreased.

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